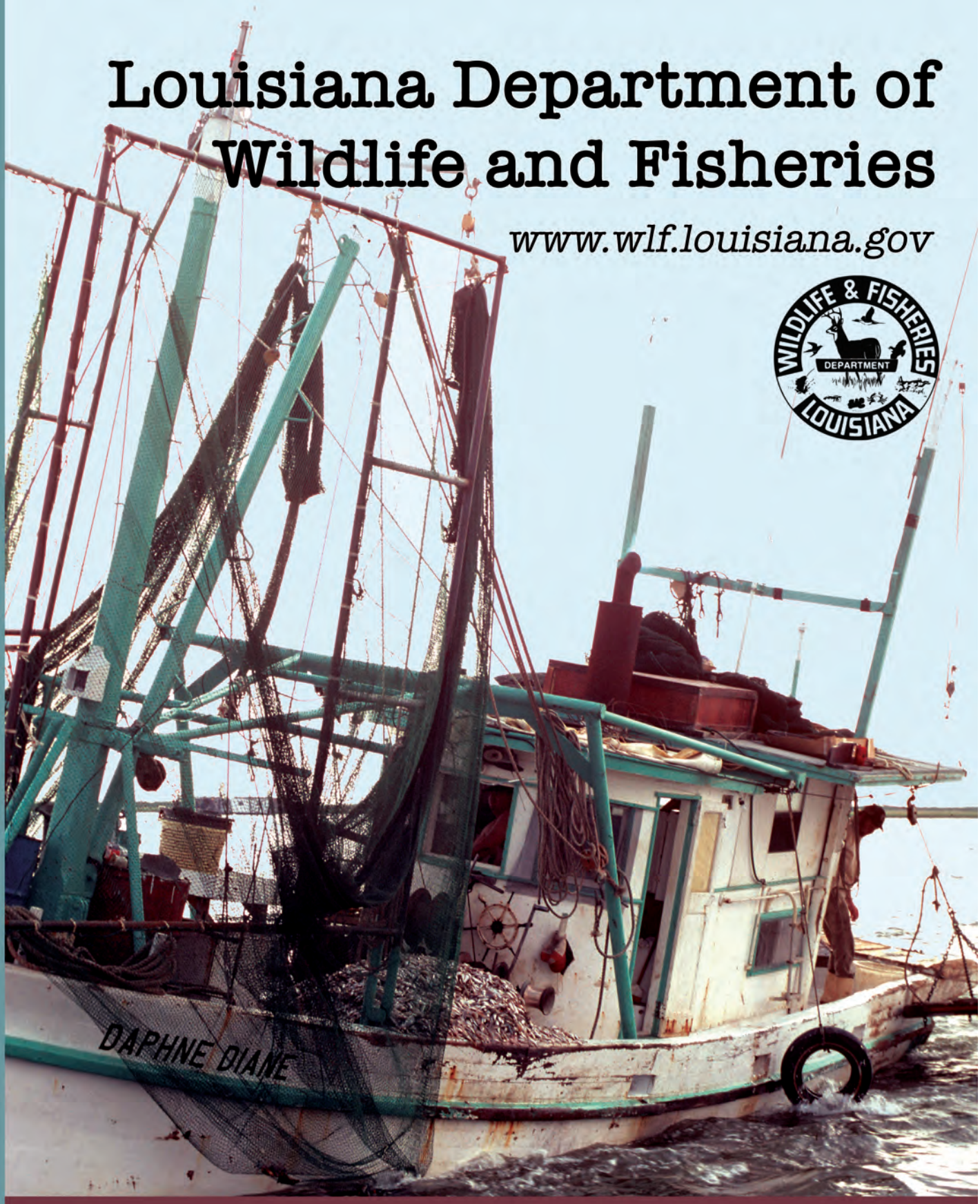
Louisiana Department of Wildlife and Fisheries

www.wlf.louisiana.gov



2005-2006 Annual Report

From the Secretary

In the aftermath of Hurricanes Katrina and Rita, the Louisiana Department of Wildlife and Fisheries (LDWF) worked diligently on recovery efforts in fiscal year 2005-2006. Though the events took place before my tenure as Secretary began, I have seen a great deal of progress made since I took office.

Fortunately, the absence of major storm activity during the 2006 hurricane season provided time to revise procedures and intensify training for future storm response scenarios and plan repair or relocation of regional offices and research facilities.

The good post-storm news centered on the successful rebound of most fish and game resources in coastal parishes and waterways. For those who could access those resources, recreationally or commercially, the harvest reports were good to very good.

Through all of the storm recovery efforts, this agency continued to provide customer service for licensing and permitting needs, maintained fish and game habitat management priorities and enforced the regulations protecting the valuable resources we oversee.

LDWF will continue to work cooperatively with the numerous state and federal resource management agencies, university partners and non-governmental organizations responding to the recovery challenge. The commitment is firm and the will to accomplish all that needs to be done is intact.

Sincerely,

Bryant O. Hammett, Jr.
Secretary

TABLE OF CONTENTS

The charge of the Louisiana Department of Wildlife and Fisheries is to protect, conserve and replenish the natural resources, wildlife and aquatic life of the state.

This public document was printed at a cost of $901. 100 copies of this document were printed in this first and only printing. This document was printed by the Department of Wildlife and Fisheries, 2000 Quail Drive, Baton Rouge, LA 70808 to provide an account of the department's activities during the fiscal year. This document was printed in accordance with the printing standards for state agencies established pursuant to R.S. 43:31.

Office of Secretary

The Office of Secretary is administered by the department's chief administrative officer, who oversees all scientific operations as organized by the Office of Wildlife and the Office of Fisheries. The Secretary also has ultimate authority over the operation of the department's fiscal and business matters as administered by the Office of Management and Finance. Support operations of the department report directly to the Secretary. These include the Enforcement Division and the Seafood Promotion and Marketing Board, as well as the department's Legal Section.

Enforcement Division

The Enforcement Division is responsible for enforcing laws enacted by the Louisiana Legislature relative to fish and wildlife resources and boating safety regulations, as well as federal regulations pertaining to migratory birds and endangered species.

Legal Section

The Legal Section represents the department and the Wildlife and Fisheries Commission in all legal matters involving promulgation, enforcement and administration of the state's fish and game laws and regulations, litigation involving department programs, daily advise and counsel and drafting of contracts, legal documents and legislation.

Louisiana Seafood Promotion and Marketing Board

The Louisiana Seafood Promotion and Marketing Board was created by the Louisiana Legislature with the purpose of enhancing the public image of commercial fishery products, promoting the consumption of these products and assisting the seafood industry. According to the mission statement, the board assistance is to twofold: product promotion through advertising programs and public image enhancements; and market development by better utilizing existing markets and establishing new market opportunities.

ENFORCEMENT

The Enforcement Division of the Louisiana Department of Wildlife and Fisheries provides a number of unique services to the citizens of the state. In addition to the traditional wildlife and fisheries law enforcement role, other programs include boating law enforcement, boat and hunting accident investigations, boat education and search and rescue responsibilities.

Current funding provides a field enforcement staff of two to four agents per parish, with positions allocated due to the amount and diversity of activities, participating population, workload and other factors. Total division head count is 261 positions, with an average of 10-20 vacancies at any given time due to retirement, resignation, etc. This number includes administrative staff, six communications officers and two pilots.

Agents utilize a large variety of equipment to accomplish these missions, including ATVs (4-wheelers), 4-wheel drive trucks and boats of all size and types. Primary patrol vessels are outboard bay boats and marine patrol boats in 19ft - 32ft lengths. The Enforcement Division also utilizes go-devils, airboats, mudboats, bass boats, flatboats up to 20 feet long and a 65-foot crew boat, the *Rip Tide*.

Most day to day enforcement patrols are performed by regional agents. Louisiana is divided into nine enforcement regions, each composed of two or three multi-parish districts. Regions have between 16-25 agents who are on call 24 hours per day. Regions are managed by a captain, who supervises two or three district supervisors of the lieutenant rank. Field agents work a schedule assigned by their supervisors and geared to address seasonal needs, reported violations, weather conditions and predominant activities. Schedules are often changed due to weather and reported violations, and agents are often called out to respond to in-progress violations, boating and hunting accidents and calls for search and rescue.

Enforcement agents issued a total of 12,033 criminal citations and 2,357 written warning citations in fiscal year 2005-2006, and had 767,063 public contacts.

SPECIALIZED UNITS

In addition to the regional enforcement programs, specialized units focus on certain activities or locations. These specialized units include the Oyster Strike Force, Saltwater Enforcement Patrol, Special Operations Section, Special Investigations Unit, Statewide Strike Force and Aviation Section.

The Oyster Strike Force works with region agents in coastal regions to address violations in the oyster industry, primarily harvesting from closed waters, stealing from oyster leases and state grounds and oyster size regulations.

The Saltwater Enforcement Patrol utilizes the 65-foot patrol vessel *Rip Tide* to enforce recreational and commercial fishing regulations in the Gulf of Mexico, Breton and Chandeleur Sounds and other large water bodies. The *Rip Tide* can also serve as a command post on the water for certain operations. During Hurricane Katrina the *Rip Tide* was damaged but is now functional.

The Special Operations Section houses covert operations, in which undercover agents work to stem the illegal sale of fish and wildlife, develop information about ongoing criminal enterprises and address major violations of state and federal law.

The Special Investigations Unit devotes attention to commercial fisheries operations and license fraud. Violations include the under-reporting of commercial fish harvest, smuggling, false reporting and interstate commerce violations.

The Statewide Strike Force is a group of agents who are assigned to work problem areas statewide. These agents provide regions with additional manpower on wildlife management areas and places of high seasonal utilization, such as Grand Isle.

Enforcement missions are supported by the Aviation Section. Two pilots using three airplanes provide a platform for observation of illegal hunting and fishing activities, baited areas and other violations. They play a vital role in search and rescue operations, and have helped to save numerous lives. The Aviation Section also provides services to other divisions for biological missions, such as waterfowl counts, monitoring of commercial fisheries and research missions.

BOATING SAFETY PROGRAM

With well over 320,414 registered boats and a large commercial fishing fleet, boating safety is an extremely important program. Louisiana boasts several busy ports and a thriving shipping industry, which creates further boating safety challenges for boaters. In fiscal year 2005-2006, agents worked over 105,384 man-hours on boating enforcement, education and accident investigation. More than 65,123 hours were spent on patrols utilizing a vessel.

The enforcement of boating safety regulations and boating while intoxicated (BUl) laws has been enhanced with the passage of "Rules of the Road" for boaters. These provide the boating public with clear rules for the manner in which boats are operated, and are an important tool in determining fault in boating accidents. The "Rules of the Road" also enhance the ability of agents to address reckless and careless operation of motorboats.

Agents continue to provide search and rescue services, both on land and water. These operations save lives and reduce the suffering of accident victims, stranded hunters and boaters and anyone needing rapid response. Additionally, they also minimize the anxiety for family members unaware of the fate of their loved ones. Agents receive specialized training in search and rescue and work constantly to develop close working relationships with other agencies so that response efforts can be coordinated.

An increasingly important aspect of the boating safety program is boater education. Act 921 of the 2003 Regular Session required mandatory boater education for anyone born after January 1988. Agents in each region hold classes each month, and are in the process of recruiting and training volunteer instructors. This program is similar to hunter education, and provides a vital outreach to the community. In fiscal year 2005-2006, 4,050 citizens attended 198 classes. The class teaches safe, legal and

responsible boat operation and is approved by the National Association of State Boating Law Administrators.

TRAINING PROGRAM

The Wildlife and Fisheries Law Enforcement Academy graduated 15 agents in fiscal year 2005-2006. The academy trains and certifies cadets in a wide variety of areas, including the Peace Officers Standards and Training (POST) Council certification required of all law enforcement officers. Cadets live at the academy during the week and experience a boot camp style program, with daily physical training in addition to classroom activities. There are many hands-on courses, such as waterfowl enforcement, boat operation and firearms training. Each cadet is equipped with a laptop computer with the capability for networking through the Internet for access to web based courses and research sites.

Cadets receive training in numerous courses of study and are certified in 10 courses of training conducted by expert trainers from a number of other agencies, including in-house trainers certified by the FBI. The certification courses are standardized field sobriety training (LDWF), chemical testing for insobriety (Louisiana State Police), DWI detection (LSP Highway Safety Division), Louisiana Safe Driver's Course (Department of Public Safety), basic marine theft, basic defensive tactics, collapsible baton techniques, wildlife agents aquatic survival and chemical weapon indoctrination (LDWF).

JOINT ENFORCEMENT AGREEMENT

The Enforcement Division again entered into a Joint Enforcement Agreement (JEA) with the National Oceanic and Atmospheric Administration's Office for Enforcement. Under this agreement, Enforcement Division received $1.5 million to patrol for compliance with federal fisheries regulations, primarily in the Gulf of Mexico. Several patrol vessels and other necessary equipment have been acquired under this program. Agents have been very successful, obtaining a number of large cases involving commercial and recreational violations. NOAA provided an additional $1.5 million to assist the LDWF Enforcement Division with the impact caused by the Hurricanes Katrina and Rita.

OPERATION GAME THIEF

Louisiana Operation Game Thief, Inc. (OGT) is a program which provides cash rewards to those providing information leading to the apprehension of wildlife violators. A 24-hour telephone number (1-800-442-2511) is maintained in the LDWF Communications Center. Operation Game Thief is now available via the internet. Violations can be reported by accessing the department's web-site, *www.wlf.louisiana.gov*. At the bottom of the page in the footer click on "report a violation." This will open the Operation Game Thief page where information may be submitted. Calls are immediately referred to agents for action. The callers may remain anonymous.

For fiscal year 2005-2006, over 1,664 calls were handled. Rewards totaling $10,400 were paid on 38 cases. The total amount of rewards paid by OGT since its inception 22 years ago is $225,900.

The Enforcement Division is a very active participant in Louisiana's Homeland Security Plan and represents the state in waterborne emergencies. Through the Office of Emergency Preparedness (OEP), the Enforcement Division is tasked as the lead agency with response in search and rescue operations during natural disasters and, most recently, maritime security of Louisiana's vital business and government interest along major rivers and the coast. As members of the Governor's Homeland Security Advisory Council, the Area Maritime Security Executive Steering Committee and all major port security committees within the state, our enforcement agents respond frequently to requests for LDWF marine resources to be deployed for security concerns. Our ability to operate throughout the state's vast maze of waterways and wild areas with specialized training and equipment has complimented Louisiana's ability to respond to emergencies on the water and in rural areas. On August 29, 2006 the state of Louisiana was impacted by the most devastating storm in history, Hurricane Katrina. LDWF enforcement agents responded to New Orleans, La. and surrounding coastal parishes to perform search and rescue operations, rescuing citizens caught in the path of the storm. Over the course of the operations period, agents rescued an estimated 21,000 citizens including evacuation of several hospitals. Enforcement agents were assisted in these efforts by employees from other divisions within LDWF. Shortly there-after enforcement agents were dispatched to the southern and southwestern areas of the state to again perform search and rescue missions in response to Hurricane Rita. Additional details and after-action reports are available upon request from the Louisiana Department of Wildlife and Fisheries.

LOUISIANA SEAFOOD PROMOTION AND MARKETING BOARD

The year began with the second annual Great American Seafood Cook Off, a contest that raises consumer awareness about the importance of eating domestic seafood.

After Hurricanes Katrina and Rita, the Louisiana Seafood Promotion and Marketing Board (LSPMB) redirected itself. The number-one objective was to assist in the survival of Louisiana's fishing families.

This document does not allow for the recognition of the many agencies, trade associations, nonprofit and community groups who are working toward this objective. LSPMB is proud to have aligned itself with these many committed people and to have applied its resources toward the recovery of the state's seafood culture.

KEY EFFORTS

Declare a Disaster, Assess Damage, Create a Recovery Plan, Seek Funding

Immediately after Katrina and again immediately after Rita, on behalf of the commercial and recreational fishing communities, the Louisiana Department of Wildlife and Fisheries (LDWF)

requested, and the U.S. government posted, the Declaration of a Federal Fisheries Disaster on the Gulf Coast.

LDWF collected the initial data on losses to, for example, fisheries resources, income to harvesters, commercial infrastructure and charter boat services. They crafted a $710 million recovery plan and submitted it to state and then federal powers that be.

Throughout fiscal year 2005-2006, all interested parties worked hard toward securing funding for the plan and creating adjunct plans to assist the fishing families more directly. There were a number of trips to Washington, D.C. to provide information to decision makers and to discuss options for funding sources.

Address the Water Quality and Public Health Concern
LSPMB worked with Louisiana Department of Health and Hospitals (DHH), Louisiana Department of Environmental Quality (DEQ), LDWF and LSU AgCenter Department of Food Science to address seafood safety.

On September 30, 2005 a press conference was held at the Office of Emergency Preparedness (OEP) and DHH stated that Louisiana seafood in Lake Pontchartrain and surrounding waters had been tested and would continue to be tested. Secretary Guidry stated that the seafood was safe to eat.

Provide Access to the Region for Federal and State Planners and Media
LSPMB hosted bus tours to the hardest hit parishes to accommodate state and federal leaders and media in the task of assessing the damage to the infrastructure and to the families there. Recovery plans and funding sources were discussed.

Following one tour, Senator Vitter and the Senate Commerce Committee held a round table discussion in Plaquemines Parish to hear comments from fishing families and fishing interests.

A core group flew over Orleans, Jefferson and St. Bernard parishes by helicopter to gain perspective on the destruction to Louisiana seafood communities.

They were joined by Bill Hogarth, director of fisheries/National Oceanic and Atmospheric Administration (NOAA), Scott Kirkpatrick of the governor's office, Dwight Landreneau, secretary of LDWF, along with strategists from Louisiana Sea Grant, plus representatives from 17 commercial and recreational fishing groups.

Raise Consumer Awareness
LSPMB joined Whole Foods Company in New Orleans in their 3 Percent Wednesdays Project. On March 29, 3 percent of all of their sales went to the Gulf Fisherman's Relief Fund at Fish for the Future Foundation

LSPMB launched the Bonne Crevette campaign beginning with a declaration by Governor Kathleen Babineaux Blanco as the white shrimp season opened.

For the first time in history, Lake Pontchartrain shrimpers towed a shrimp boat into Jackson Square. On May 2 outside of St. Louis Cathedral, public and religious dignitaries held a Grand Blessing of the Fleet.

LSPMB worked with the students of St. Bernard Unified School in Chalmette who painted 35 white shrimpers boots with scenes of what they miss since the storm. As a show of support for that community, LSPMB have displayed the boots on the state capitol steps and at special events.

LSPMB supported the Ladies of Lafourche Shrimpers, who hosted a successful annual fundraiser to benefit Louisiana shrimpers. The ladies sold over 2,000 shrimp dinners, breaking last year's record of 1,200. Their top priority is to achieve a better shrimp price for shrimpers at the dock. They have aligned themselves with an eight-state association that is working with national trade authorities.

With assistance from the Louisiana Oyster Task Force, the Louisiana Oyster Dealers and Growers created the Louisiana Oyster Community Relief Fund. It is incorporated and has the tax-exempt status. A board of directors is appropriating monies for repair of damages to the oyster industry infrastructure.

CONCLUSION

In May 2006 LSPMB presented to the America's Wetlands Conference, which ultimately resulted in a quarter million dollar donation from Shell Oil to the installation of three major ice houses in the hardest hit parishes.

In May 2006 Congress passed the Emergency Supplemental Appropriations Act to direct $150 million to the Gulf states for aid in hurricane recovery. The federal government disbursed the funds to five states for rebuilding.

The Appropriations Act cites the following needs among others: removal of wreckage; rehabilitation of oyster and shrimp stocks; repair of a major fisheries laboratory; and updating hurricane reporting capabilities.

ADDENDUM

Still, the Louisiana Seafood Board participated in some customary activities including the Boston Trade Show and the National Restaurant Show.

Office of Management & Finance

The Office of Management and Finance is directed by the Undersecretary. This budget unit is responsible for the functions of accounting, budget forecasting and control, procurement and contract management, administrative services, information technology and services, management and program analysis (including strategic and operational planning), socioeconomic research and analysis, property control (including fleet management), boat registration, human resources management (including payroll), grants management, administration and issuing of licenses and permits, collection of fees, taxes, fines and penalties, public information and the Louisiana Conservationist magazine.

Administrative Services

The Administrative Services Section provides mail and duplicating/binding services for the Baton Rouge office, oversees the statewide purchasing activities and manages the fleet fuel program and the state procurement card program.

Computer Center

The Computer Center oversees the department's information processing resources.

Fiscal

The Fiscal Section is responsible for all financial operations of the department.

Human Resources

The Human Resources section handles all employee personnel actions, develops policies and procedures, conducts training and new employee orientation, administers the performance planning and rating program and the department's safety program.

Licensing

The Licensing Section controls the issuance of all licenses and most other permits and is responsible for the collection and deposit of related fees.

Public Information

The Public Information Section is responsible for the production of printed materials and audio-visual products, media relations and special events and promotions.

Property Control

The Property Control Section is responsible for the department's movable property program, fleet management program and handles property insurance claims.

Socioeconomic Research & Development

The Socioeconomic Research & Development Section conducts economic research pertaining to wildlife and fishery resources, provides support to other department programs, and represents the department on various study groups, task forces and committees.

ADMINISTRATIVE SERVICES

The Administrative Services section consists of Purchasing and General Services, whose mission is to provide support services for the Louisiana Department of Wildlife and Fisheries so that the overall mission of conservation of renewable natural resources is accomplished.

The administrative staff works closely with and supports other divisions. More specifically, they assist with agency term contracts and purchasing specific to LDWF, seafood promotions, alligator harvest, timber sales and farm leases.

PURCHASING

The Purchasing Section consists of three purchasing professionals. In fiscal year 2005-2006 this section managed 115 contracts and 3,639 other types of purchases. This section also maintained, initiated or updated 20 leases. Purchasing insures compliance with all state and department laws and regulations concerning procurement. Purchasing trains and serves as the help desk for all divisions in the statewide-computerized system ISIS. The purchasing part of ISIS is called AGPS. The purchasing process continues to improve with the use of the purchasing card that the Purchasing Section manages. This card also reduces the number of purchase orders having to be entered into the AGPS system and has eliminated most of the usage of petty cash accounts. It has saved employee time in dealing with vendors in the payment process. Paying via purchasing card has given LDWF a broader procurement base and has allowed LDWF to do business with a variety of vendors who normally do not use purchase orders.

In addition to the above, the Purchasing Section handles rental and payment for statewide postage equipment, copy machines, trash pick up and pest and termite control.

The Purchasing Section also manages the fuel card system for fuel purchases and vehicle repairs.

GENERAL SERVICES

General Services, consisting of one permanent employee and two students, supports all divisions of LDWF by operating the mail system, receiving all deliveries and shipping all packages for the Baton Rouge office. Over 320,000 pieces of mail were processed this fiscal year. This section is also responsible for duplicating and binding large numbers of documents as required by the divisions. Approximately 2 million copies were produced on the duplicating machine. General Services maintains a supply of paper and envelopes to be distributed to the Baton Rouge office, district offices and remote facilities. Maintaining an inventory on paper and regular and custom envelopes helps the department keep costs down by eliminating the need for each office to order its own.

COMPUTER CENTER

The Wildlife and Fisheries Computer Center is responsible for maintaining the agency's information processing resources. The center operates three mainframes and 23 Intel based Windows servers. The Computer Center supports 564 desktop computers and 275 laptops in 15 locations throughout the state and supports and maintains the network infrastructure that ties them all together. We offer training, help desk support, custom programming, database services, email services, Internet access, user data backup for headquarter users, statistical analysis tools for biologists and imaging services for Human Resources, Licensing and Fisheries.

Additionally the computer center has developed the mainframe applications necessary to sell and maintain commercial licenses, motorboat registrations, hunting/boating safety, Alligator System and Lottery System. On the Intel platform, we developed and maintain the Enforcement application that allows us to track citations as well as the magazine system that tracks the *Conservationist* magazine subscription information.

The Computer Center along with our Public Information section maintains the department's public web server which contains information on hunting rules and regulations, season dates, licensing information, emergency closures and much more.

Technical Support Section

(4 employees, 1 student)

The Technical Section supports 564 desktop computers and 275 laptops throughout the state. In the last eight years the number of personal computers that the department utilizes has grown from under 25 to over 500. Keeping these machines maintained and secure is one of the Technical Section's biggest challenges. Each of these machines must have regular updates applied and have certain software installed and updated (anti-virus, spyware). Providing general help desk support for these computers occupies a large portion of a tech's time. For fiscal year 2005-2006, the technical section fielded 3,449 non trivial telephone support calls, configured, built or relocated 239 computers/printers, and answered 4,150 emails on hardware and software support issues. Technical calls can be as simple as helping with an expired password to helping with software problems/re-installations or as complicated as helping repair and diagnose failed hardware. The technical staff must travel regularly to all of our remote facilities to perform this maintenance on all machines.

The Technical Section maintains three mainframes and 23 Windows based servers. Each of our mainframes/servers must be given daily maintenance. This includes not only keeping the operating systems and utility software up to date, but also providing regular backups for all critical data. On the mundane side, loss of data can come from simply losing a disk drive, losing

entire computers or being hacked. Catastrophic loss of data can come from fire, flood, terrorism or other causes that would impact the entire organization. In addition data can be lost through human error such as inadvertently deleting records that they shouldn't. All these risks must be mitigated. Primarily this is done through daily backups of all pertinent data. Every day all critical data on our servers is backed up and stored off-site. Additionally we also attempt to back up the majority of our user's important data that is stored on their hard drives.

Maintenance also includes keeping all the critical software that runs on the servers up to date and functional. The services we provide include things such as E-mail, databases, anti-virus protection, web-services and network operating system services/ security. All these software packages are regularly updated. Training to keep up with these updates could easily become a constant activity. During fiscal year 2005-2006 LDWF had three major upgrades to the server and desktop environment. The technical Section staff upgraded the production email server to faster hardware along with upgrading its software to the newest level. All of the HQ desktops, and approximately 25 percent of the field users, have been upgraded to the anti virus standard program, McAfee, chosen by the Office of Information Technology. Two patch management servers have been added to ensure LDWF servers and desktops receive approved security updates and patches in a timely manner.

Finally, the Technical Section is responsible for maintaining the underlying network infrastructure that allows all the computers to communicate with one another. This involves monitoring the network for problems and diagnosing and repairing network routers, switches, hubs, VPN concentrators and telephone data circuits (local and for all remote facilities). Included with this is guarding the network from internal and external threats (hackers/viruses), and maintaining Internet connectivity for all internal users.

Application Development Section
(6 employees)
The application development team is responsible for maintaining all custom written applications and new application development. Our applications run on a combination of mainframe and windows server environments. Current applications that the staff has developed and supports include:

- Web based Enforcement system for issuing and tracking violations.
- Enforcement Complaint system.
- Enforcement Time sheet system.
- Enforcement Revocations system.
- Enforcement Seafood Inspection system.
- The Motorboat application for issuing motorboat permits.
- The Commercial License application, for issuing commercial fishing licenses for the agency.
- The Magazine system for tracking the in-house *Conservationist* magazine.
- Training application for keeping track of mandatory and supervisory training.
- Alligator system for tracking all alligators processed commercially in LA.
- DPS system for looking up DMV records for residency validation.
- Lottery application to chose participants in the randomly drawn hunts.
- Zip code lookup application.
- Hunter Education system for keeping track of participants in the mandatory hunter education program. A recent addition to this application includes giving the public the ability to request a duplicate hunting safety card online and receive online fulfillment. This is at no cost to the individual or the department.
- System to track permits that department personnel is involved with.
- Revocation system for keeping track of individuals that may not purchase licenses.
- Sports License (Lifetime license printing).
- Web based Displaced Boat lookup (to help public locate lost boats).
- Web based DMAP, system for keeping track of Deer Management applications.
- Web based Oyster Tag Sales system.
- Trip Ticket employee performance system.
- Legal application for tracking legal rulings and information.
- Nuisance Animal Control issues permits for nuisance animals.
- Employee Portal - application used by employees to launch other LDWF developed web based applications.

Imaging Section
(3 employees)
The Imaging Section is tasked with scanning and indexing department documents which include:

- Federally mandated trip ticket data (from commercial dealers used in tracking commercial harvest information).
- DMAP invoices - provides wildlife division information on deer management areas.
- Boating safety applications (new and backlog).
- Hunter safety applications (new and backlog).
- Bow Hunter Student Applications.
- Enforcement complaint forms.
- Enforcement time sheets.
- Enforcement seafood inspection forms.
- Enforcement vessel inspection forms.
- LADT invoices (similar to DMAP).
- Motorboat revenue checks.
- Other revenue checks.
- Shrimp Excise Tax forms - helps our accounting division keep track of excise tax monies.
- Licensing backlog.

The Imaging Section takes requests from LA seafood dealers, in person, on the phone, by mail and by fax. These orders can be very time consuming as they often need to explain the variety of forms and their usage. The 2004-2005 hurricane season damaged/ destroyed many seafood dealer locations. The imaging section continues to work with dealers destroyed by Hurricanes Katrina and Rita. The section is constantly preparing the much needed information to supply over 2,000 maintenance packets and over 1,000 new dealer packets each month.

The Imaging Section not only scans a vast number of documents for the agency, but also verifies and corrects the data as well. This is very tedious work due to the wide ranges of handwriting and poor conditions of the forms when they arrive. In addition to

scanning duties, the Imaging Section runs nightly reports for the agencies' applications systems, helps compile and print newsletters/news-releases for the Information, Enforcement, Commercial License, Hunter Safety, Motorboat and Recreational License sections.

The system that the Imaging Section staff maintains is used by the Motorboat section to image and archive all motorboat applications/renewals. Human Resources also images every employee document into the system. The imaging system cuts back drastically on the amount of paper documents that must be maintained, makes it possible for instantaneous search/retrieval of these documents and allows multiple HR analysts to access the same records concurrently and securely.

FISCAL

The Fiscal Section is staffed by 13 employees and is responsible for all financial operations of the department. The main goal of the Fiscal Section is to achieve compliance with all applicable laws, rules, policies and regulations governing the activities managed. The staff develops and implements fiscal controls, provides advice, assistance and training, and standardizes procedures.

The Fiscal staff perform various functions: budget and expenditure control and monitoring; federal grant tracking and reporting; preparation of all required financial reports; reviewing and processing professional and consulting contracts; payment of all vendors; receipt and classification of revenue; assessment of civil fines; telecommunications services; processing of employee travel reimbursements; liability insurance reporting; and strategic planning.

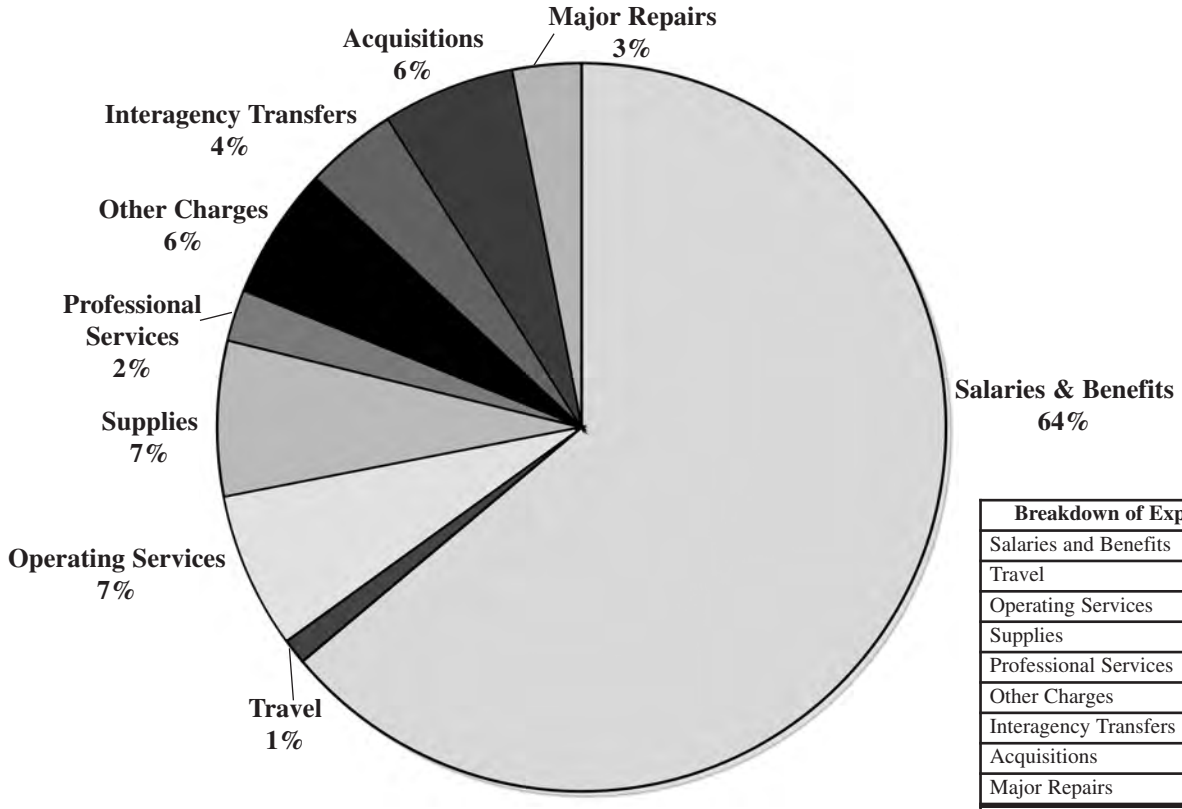
During fiscal year 2005-2006, the Fiscal staff:

- reviewed 65 new contracts with a total payable of $4.4 million.
- processed 499 payments on contracts for $4.7 million.
- handled service and billing for 303 cellular accounts.
- responded to 101 requests for telecommunications services and repairs.
- processed 9,407 vendor payments.
- audited and processed 4505 purchasing card statements.
- warranted funds and prepared periodic reports on almost 100 grants.
- deposited $27.7 million in receipts from various sources.

Fiscal Year 2005-2006 LDWF Expenditures by Category (type)

Total Expenditures = $73,296,200

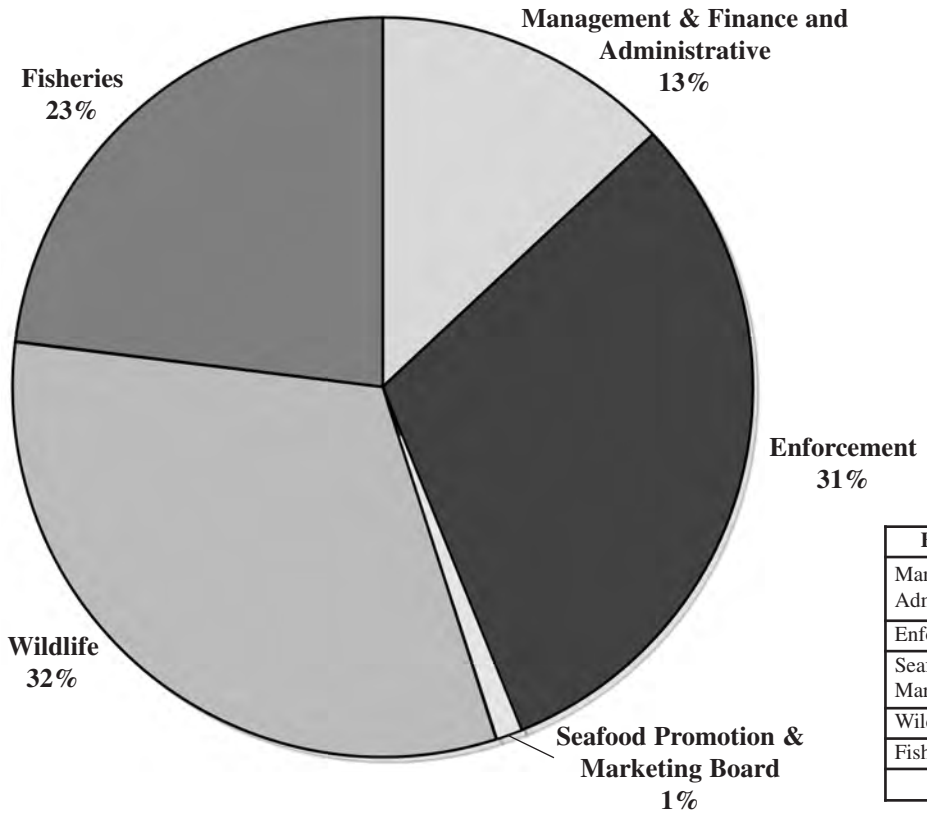
Total Authorized Positions = 801



Breakdown of Expenditures by Category	
Salaries and Benefits	47,103,777
Travel	380,527
Operating Services	5,477,719
Supplies	5,265,716
Professional Services	1,115,626
Other Charges	4,657,143
Interagency Transfers	2,852,466
Acquisitions	4,136,608
Major Repairs	2,306,618
Total	$73,296,200

Fiscal Year 2005-2006 Department Expenditures by Appropriated Program

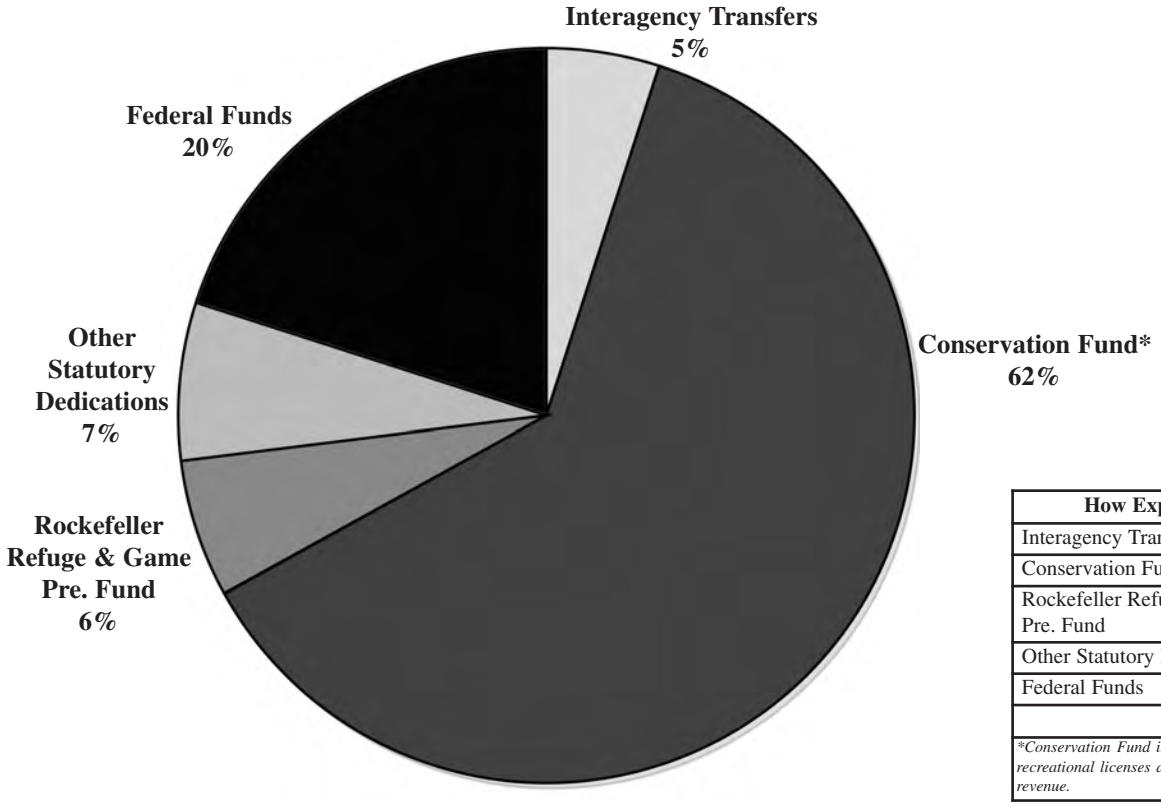
Total Expenditures = $73,296,200



Breakdown of Expenditures by Program	
Management & Finance and Administrative	9,368,344
Enforcement	22,666,038
Seafood Promotion Marketing Board	825,041
Wildlife	23,288,803
Fisheries	17,147,974
Total	$73,296,200

How 2005-2006 Expenditures Were Funded (Means of Financing)

Total Means of Financing = $73,296,200

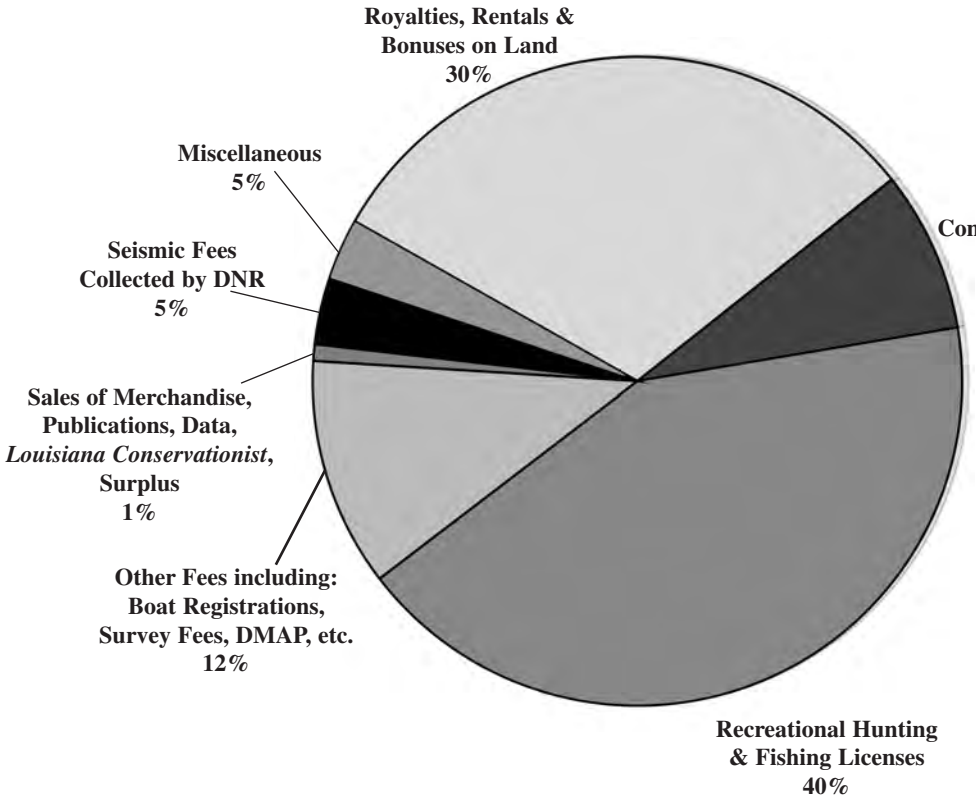


How Expenditures Were Funded	
Interagency Transfers	3,385,707
Conservation Fund	45,061,436
Rockefeller Refuge & Game Pre. Fund	4,511,862
Other Statutory Dedications	5,385,524
Federal Funds	14,951,671
Total	$73,296,200

**Conservation Fund is comprised of about 47% commercial and recreational licenses and other permits; 30% oil/gas royalty type revenue.*

Sources of Revenue to the Conservation Fund Fiscal Year 2004-2005

Total Revenue = $38,499,775



Sources of Revenue to the Conservation Fund	
Royalties, Rentals and Bonuses on Land	10,752,447
Commercial Licenses	2,641,000
Recreational Hunting and Fishing Licenses	14,678,143
Other Fees including Boat Registration, Survey Fees, DMAP, etc.	4,295,783
Sales of Merchandise, Publications, Data, *Conservationist* Magazine, surplus	478,661
Seismic Fees collected by DNR	1,711,761
Miscellaneous	1,814,531
Total	$36,372,326

HUMAN RESOURCES

At Wildlife and Fisheries, our most valuable resource is our human resources, the people who direct all of our other resources and get the work done on behalf of the Louisiana taxpayers, users and consumers of Louisiana's natural resources and products.

The authorized number of employees for LDWF for fiscal year 2005-2006 was 798. LDWF also employed students throughout the state.

Along with our active employees, we also provide service and guidance to retirees, former employees and their dependents.

One of the responsibilities of the Human Resource section is the comprehensive administration of our employees' personnel actions.

The Human Resources section is responsible for several program areas: Human Resource Administration (policies and procedures, civil service rules, layoffs); EEO Compliance (ADA); Performance Appraisal; Training and Staff Development (CPTP, MST, agency sponsored training); Employee Relations (employee counseling, Employee Assistance Program, grievances); drug testing; Employee Recognition Program; Classification (Position Descriptions, Job Studies, Audits); Wage and Salary Administration; Recruitment Program; Selection and Placement; Benefits Program (health, life and miscellaneous insurance, retirement, workers, compensation, leave management, unemployment, and FMLA); Operations (employee files, personnel actions, enrollment and exiting of employees); Payroll Administration (ISIS system); Safety; and Affirmative Action.

In an effort to enhance safety and productivity in the LDWF workforce, we continue to work with employees and management to develop safe and productive work conditions through several of our programs such as Safety, Planning and Performance Review and Training and Staff Development.

LICENSING

To better serve in excess of 1 million customers, the licensing division continues to streamline processes to improve availability and reduce processing time for licenses and boat registrations. Commercial licenses are available to our customers at the Bourg Office during December and April, boat renewals are available by Internet and telephone and recreational licenses are available at more than 700 locations throughout the state, as well as by Internet and telephone.

License/registration activities and related revenue collections are as follows:

- 1.74 million recreational hunting and fishing licenses generated $21 million in revenue, in excess of 800,000 customers
- 66,526 commercial licenses sold, generating $3.39 million in revenue, in excess of 20,000 customers.
- 142,969 boat registration activities, generating $3.3 million in revenue, maintaining data for boats in access of one million records, 320,414 of which are active registered.

Licensing staff attended the Annual Conservation Business Managers Association and ACES Conference.

PUBLIC INFORMATION

The Public Information Section is responsible for the production and distribution of the department's printed materials, ongoing media relations, public resource centers, audio-video productions, special promotions or events and Web site. The section consists of 11 employees who accomplish these tasks through seven programs: *Louisiana Conservationist* magazine; Publications; News and Media Relations; Audio-Video Productions; Public Resource Library; Special Events; and Web site.

LOUISIANA CONSERVATIONIST MAGAZINE

The *Louisiana Conservationist* magazine (LCM) continued to produce a high quality publication during fiscal year 2005-2006 without changes. The November/December 2005 issue was focused entirely on hurricanes Katrina and Rita with articles on the rescue efforts, habitat damages and recovery efforts. Additional copies of the issue sold out within a couple of weeks after publication. A drop in circulation was felt immediately after the hurricanes due to displaced citizens and the inability to deliver mail to hurricane damaged areas. However, by the close of fiscal year 2005-2006 circulation was back to pre-hurricane numbers, approximately 18,500.

PUBLICATIONS

The primary publication type for this unit is regulation publications. The following regulation pamphlets were produced and distributed during fiscal year 2005-2006:

- Louisiana Recreational Fishing Regulations 2006
- 2006 Commercial Fishing Regulations
- Louisiana Hunting Seasons and Wildlife Management Area Regulations 2005-2006
- Louisiana Migratory Game Bird Hunting Regulations 2004-2006
- Louisiana Trapping Regulations 2005-2006
- Louisiana Turkey Hunting Regulations 2006

However, this unit also designs and produces other department pieces such as the annual report, newsletters, brochures, educational manuals, books and promotional pieces. Some of the new publications this year included a Human Resource recruitment pamphlet, *Bear Safety in Mind* brochure, *Louisiana Forest Stewardship Newsletter*, *Louisiana Wildlife Action Plan* brochure, *Louisiana Conservationist* sales ads and flyers, and two LDWF Enforcement Cadet Academy advertisements and flyers. This unit does not handle the production and design of *Louisiana Conservationist*.

NEWS AND MEDIA RELATIONS

During fiscal year 2005-2006, the News and Media Relations Unit coordinated and facilitated 94 department activities and events covered by the media through print, broadcast or electronic communications. The large increase in coverage is due to the overflow of news generated by hurricanes Katrina and Rita to coastal Louisiana. LDWF's media unit covered hurricane activities, including search and rescue (SAR) during the aftermath, and habitat recovery efforts throughout the year. Two staff members traveled with the LDWF Enforcement Division for a limited time in boats during the SAR efforts, documenting the agency's efforts. In addition, several staff members worked at the Office of Emergency Preparedness for several weeks assisting with media inquiries, phone banks, rescue calls and other duties related to the SAR efforts.

The News and Media Relations Unit is also responsible for the distribution of agency news releases. In fiscal year 2005-2006, this unit distributed 390 news releases and features through electronic means to approximately 200 media outlets and related organizations. The department's biweekly newsletter continued as an electronic publication available to the public through LDWF's

Web site. This unit covers and reports on the monthly Louisiana Wildlife and Fisheries Commission meetings as well as the Wildlife Division's statewide public meetings for the annual hunting regulations.

AUDIO-VIDEO PRODUCTIONS

The LDWF Audio-video Unit, a unique feature for a state agency, handles all audio and video productions for the agency. The unit contains a video archive of approximately 2,500 tapes of various formats, containing thousands of hours of raw footage. Footage is provided to the media upon request, which over the years has included various types of production companies ranging from local television stations to global production companies.

The A/V unit produced five informative videos for public distribution during fiscal year 2005-2006. The most widely viewed and distributed production was a 10-minute video covering the effects of hurricanes Katrina and Rita on Louisiana's coast and LDWF's search and rescue efforts. Other productions included a Public Service Announcement for LDWF's Enforcement Division.

Video news releases (VNR), specialized audio or video requests and recording of meetings and events are the responsibility of this unit. Twelve VNRs were created in fiscal year 2005-2006 and distributed statewide to 15 major television stations, two Public Information bi-annual reports in video format were presented to the Louisiana Wildlife and Fisheries Commission and the annual enforcement commencement video chronicled the 26-week cadet training process. The A/V unit is also responsible for officially recording audio for the monthly Wildlife and Fisheries Commission meetings.

PUBLIC RESOURCE LIBRARY

The LDWF Public Resource Library is open for public access during normal work hours. Available materials include various natural resource related publications, *Louisiana Conservationist*, wildlife management area maps, historic books and documents, regulation pamphlets and a selection of VHS videos available for loan. The library also houses the department's small marketing unit that retails items generated within LDWF. These items include maps, books, posters, manuals and various other documents created by its employees.

The library receives public information request on a daily basis. The total number of information requests received for fiscal year 2005-2006 was 9,317, a considerable increase from 5,020 in the previous year. The breakdown by source was as follows:

- E-mail 447
- U.S. Mail 133
- Phone 4,283
- Walk-in 4,454

Another element of the library is the department's front reception area located at the headquarters building in Baton Rouge. This front line contact is operated and maintained by library staff, greeting and directing visitors as they enter the building. All inquiries, phone calls, and walk-in visitors are cataloged by month. The total number of inquiries for fiscal year 2005-2006 were 10,898 walk-ins and 18,479 phone calls.

SPECIAL EVENTS

The Public Information Section is responsible for organizing and executing special public and promotional events for the department. These events are the responsibility of all seven units with each unit contributing their expertise.

Discover Louisiana Hunting (DLH)

LDWF launched a new promotion in Fall 2005 titled "Discover Louisiana Hunting" to promote hunting in Louisiana. The objective was to provide an opportunity for any currently unlicensed adult (16 years of age or older) to experience recreational hunting with a licensed hunter during the Thanksgiving weekend, Nov. 25-27, 2005. Louisiana residents and non-residents were eligible. The offer was a once-in-a-lifetime offer.

Launching DLH proved to be a challenge in 2005. The two major hurricanes in August and September kept most of south Louisiana involved in the priority tasks of pre-storm preparation, and post-storm recovery. The original launch date was Sept. 1 but was delayed until Sept. 15. Hurricanes Katrina and Rita interrupted or cancelled Hunter Education classes affecting the numbers of Hunter Education students completing the process. Habitat damage additionally delayed deer and rabbit seasonal openings in parishes most severely affected by the storms.

Despite the complications, the department was able to set the foundation for the program in the years ahead. The DLH Web site was established as an information source for the event. Post-event survey results, returned from 25 of the 94 participants, indicated a positive experience overall. Plans were confirmed to continue the program in 2006.

Louisiana Restaurant Association 2005 Foodservice Expo

For the third consecutive year, Public Information represented LDWF at the annual Louisiana Restaurant Association's trade show in New Orleans. A floor exhibit was created and manned in the Gulf Coast Seafood Pavilion. The Public Information staff also assisted the Louisiana Seafood Promotion and Marketing Board with on-site help at the Great American Seafood Challenge.

Outdoor Writer Association Conferences
Two outdoor writer groups requested assistance from the Public Information Office with obtaining the Outdoor Press Licenses and exhibits. The Louisiana Outdoor Writers Association requested LDWF to exhibit and participate at their annual conference in Houma in early August 2005. The Outdoor Writers of America Association held their annual conference in Lake Charles on June 2006 and requested LDWF participate with a floor exhibit and assistance with obtaining the outdoor press licenses for their members.

National Hunting and Fishing Day Celebration
The annual Louisiana's National Hunting and Fishing Day Celebration took place again at four locations across the state. However, the original event was rescheduled from Sept. 24 to Oct. 22 due to Hurricane Rita. The Public Information Office organized and executed the activities for the Baton Rouge location, once again offering a full day of outdoor activities for the public, free of charge. The events included skeet shooting, fishing, archery, canoeing, seafood and wild game tasting and many other activities. LDWF personnel provided displays and demonstrations to help educate children and families about the outdoors in Louisiana. This was the 21st year for Baton Rouge and attracted approximately 2,200 attendees.

WEB SITE
During fiscal year 2005-2006, LDWF sought to redesign its Web site. Through public and internal feedback, it was determined that the site was outdated and difficult to use.

The department formed a Web Site Task Force comprised of members from each division within the agency. Employees from each division were also interviewed to assess weaknesses of the website and collect ideas for a new site. Through much work and coordination, a new website was designed during fiscal year 2005-2006 and finally launched on April 6, 2006.

The redesigned site introduced a new navigational scheme. Users no longer need to know the department's organizational structure in order to find information. With a fresh, new look and an easy-to-navigate design, the site was well received by the public. Some new features included a license wizard, calendar of events, current and archived news releases, site search engine, public surveys, "quick-links" to most-wanted information, an online *Request a Speaker* form and many more. The site also places more emphasis on education by offering an abundance of information on such topics as fish identification, threatened and endangered species, rare plants and animals, ecotourism and more. It also offers a section for teachers' classroom resources to assist teachers with school project ideas and field trips.

PROPERTY CONTROL

The Property Control Section is responsible for managing the department's Property, Fleet Management and Risk Management Programs. The section is staffed with four full-time employees.

PROPERTY CONTROL PROGRAM

During fiscal year 2005-2006 this program certified a moveable property inventory which consisted of 8,627 items for a total acquisition cost of $44,794,422. Annually, the program is responsible for ensuring that a physical inventory of moveable property is conducted at the various 88 locations throughout the state.

The Property Control Section processed $4,438,642 in acquisitions and $3,218,347 in dispositions of inventoried moveable property during fiscal year 2005-2006.

FLEET MANAGEMENT PROGRAM

In accordance with State Fleet Management Regulations this section records, approves and processes requests for personal assignment or home storage, daily vehicle usage, vehicle maintenance, and titles, registrations and vehicle licenses for the department's 566 fleet and 656 other licensed vehicles.

The Property Control Section also manages the 11 vehicles assigned to the Baton Rouge Headquarters Motor Pool.

RISK MANAGEMENT PROGRAM

The Property Control Section is responsible for filing insurance claims and recovering payment from the Office of Risk Management and third party insurance companies for property damage, automobile physical and liability damage, wet marine, aviation, boiler and machinery damage.

Driver's authorization and annual certification for the department's approximate 800 employees is also a responsibility of the Property Control Section. This process is accomplished in accordance with Office of Risk Management's Loss Prevention guidelines.

SOCIOECONOMIC RESEARCH AND DEVELOPMENT

The Socioeconomic Research and Development Section (SRD) was established in 1992 within the Office of Management and Finance of the Louisiana Department of Wildlife and Fisheries. The duties and responsibilities of the section are:

- to recommend, conduct and coordinate economic research studies pertaining to wildlife and fisheries resources of Louisiana and the Gulf Region.
- to present research findings at appropriate professional and scientific meetings and publish results in departmental publications and peer-reviewed scientific journals.
- to provide information and support to other sections and divisions within the department, as well as agencies outside the department, to assist them in accomplishing their research needs, management tasks and short and long-term objectives.
- to represent the department and state in various study groups, on task forces and on committees established to study, manage and improve wildlife and fisheries resources at the local, state, regional and national levels.
- to administer and implement special programs.
- to perform other activities as directed by LDWF's appointing authorities.

Publications and Reports

- Chi, Yeong Nain and Jack Coburn Isaacs. "Understanding Environmental and Fishing-Related Concerns of Red River Anglers in Louisiana." *Interdisciplinary Environmental Review*, Vol. VII, No. 2, pps. 76-93. December 2005.

- Chi, Yeong Nain. "Segmenting Fishing Markets Using Motivations." *e-Review of Tourism Research*, Vol.4, No.3, pps. 64-73. June 2006.

- Chi, Yeong Nain, J.C. Isaacs, J.L. Icabalceta, H.A. Holloway, and D.R. Lavergne. "Determinants of Participation and Expenditures: The Case of U.S. Recreational Saltwater Fishing." *The International Journal of Business and Public Administration*, Vol.2, No. 2, pps. 11-20. Fall 2005.

- Isaacs, Jack Coburn. "The Results of the 2005 Vendor Survey." Socioeconomic Research and Development Section, Louisiana Department of Wildlife and Fisheries, Baton Rouge, Louisiana. September 2005.

- Isaacs, Jack Coburn, and Yeong Nain Chi. "A Travel-Cost Analysis of a Birdwatching Festival: The Grand Isle Migratory Bird Celebration." Socioeconomic Research and Development Section, Louisiana Department of Wildlife and Fisheries, Baton Rouge, Louisiana. October 2005.

- Isaacs, Jack Coburn, and Yeong Nain Chi. "The Economic Contributions of Two Saltwater Angling Tournaments: The Case of the Faux Pas and R.F.R.I. Fishing Rodeos in Plaquemines Parish, Louisiana." Socioeconomic Research and Development Section, Louisiana Department of Wildlife and Fisheries, Baton Rouge, Louisiana. February 2006.

- "Customer Service Assessment Report 2005 with Customer Service and Employee Plan for 2006." Socioeconomic Research and Development Section, Louisiana Department of Wildlife and Fisheries, Baton Rouge, Louisiana. January 2006.

- Isaacs, Jack Coburn, Jorge Icabalceta, and David Lavergne. "Limited English Proficiency Report and Language Assessment Plan." Socioeconomic Research and Development Section, Louisiana Department of Wildlife and Fisheries, Baton Rouge, Louisiana. May 2006.

Presentations

- Chi, Yeong Nain and Jack Coburn Isaacs. "Motivation-Based Specialization of Red River Anglers in Louisiana."

Presented at the 28th Southeastern Recreation Research Conference, Wilmington, North Carolina, February 26-28, 2006.

- Chi, Yeong Nain and Jack Coburn Isaacs. "An Empirical Analysis of Cohort Effect of Fishing Motivations." Poster presented at the 2006 Louisiana Academy of Sciences Conference, University of Louisiana at Lafayette, March 10, 2006.

- Chi, Yeong Nain and Jack Coburn Isaacs. "A Multinomial Logit Analysis of Red River Anglers Based on Fishing Motivation." Presented at the Annual Meeting of the Southwestern Economics Association, San Antonio, Texas, April 13-15, 2006.

- Isaacs, Jack Coburn, and Yeong Nain Chi. "An Economic Assessment of the Grand Isle Migratory Bird Celebration." Presented at the Grand Isle Arts Exhibition, Grand Isle, Louisiana, April 22, 2006.

- Isaacs, Jack Coburn, and Yeong Nain Chi. "An Economic Analysis of the Grand Isle Migratory Bird Celebration." Presented at the Louisiana Ornithological Society meeting, Grand Isle, Louisiana, April 28, 2006.

- Lavergne, David R. "Louisiana's Clean Vessel Grant Program: Accomplishments and Obstacles." Presented at the 19th Annual States Organization for Boating Access (SOBA) Conference, Springfield, Illinois, October 9-11, 2005.

Representation on Task Forces, Study Groups and Committees
During fiscal year 2005-2006, staff members of the Socioeconomic Research and Development Section represented LDWF on the following task forces, study groups and committees:

- Barataria-Terrebonne National Estuary Program's Migratory Bird Action Plan Team.
- Center for Natural Resource Economics and Policy, Louisiana State University, Baton Rouge, Louisiana.
- Gulf States Marine Fisheries Commission Disaster Recovery Program Committee.
- Gulf States Marine Fisheries Commission FIN Social/ Economic Work Group.
- Louisiana Blue Crab Task Force.
- Louisiana Clean Marina Program committee.
- Louisiana Ozone Action committee.
- Louisiana State Seafood Industry Advisory Board.
- Louisiana Wild Crawfish Task Force.
- Socioeconomic Panel of the Gulf of Mexico Fisheries Management Council.
- Socioeconomic Section of the American Fisheries Society.
- Technical Advisory Committee for the U.S. Fish and Wildlife Service's National Survey of Fishing, Hunting and Wildlife-Associated Recreation.

Special Programs, Projects and Surveys
Special programs, projects and surveys administered by the section during fiscal year 2005-2006 included the Clean Vessel Program, Customer Service Program, Louisiana Nutria Harvest and Environmental Impact Project, the LDWF Language Assistance Plan, Louisiana Birdwatching Festivals Economic Assessment Project and the Louisiana Senior Sportsman Survey. A description of each program and a list of accomplishments for fiscal year 2005-2006 are presented below.

Clean Vessel Program
The Clean Vessel Program provides funds to owners of recreational boating facilities for construction and renovation of boat sewage disposal facilities. The purpose of this program is to reduce overboard discharge of raw boat sewage in Louisiana's waters by providing boaters with a safe and convenient method to dispose of boat sewage. Under the program, recreational boating facility owners are reimbursed up to 75 percent of the costs of approved activities. Funds are also used to develop and distribute educational and promotional materials to encourage boaters to use these facilities and to promote environmentally responsible behavior. Clean Vessel activities in fiscal year 2005-2006 include:

- The Clean Vessel Program entered into a Cooperative Endeavor Agreement with Paul Allain Properties in New Iberia, LA in May 2005 for construction of a boat sewage pumpout facility on Bayou Teche. Equipment was purchased and construction began, until a submerged shipwreck was discovered in November 2005. LDWF then contracted with Coastal Environments, Inc. to assess the historical significance of the find. That study and report were scheduled for completion in January 2007. The Allain project has been placed on hold until the archaeological study is complete.

- Application materials were provided to several marinas, and SRD staff also provided information and assisted with completion of the application documents where needed.

- Educational information and promotional items were distributed at the National Hunting and Fishing Day in Baton Rouge, Louisiana in October 2005.

- A presentation entitled "Louisiana's Clean Vessel Grant Program: Accomplishments and Obstacles" was presented at the 19th Annual States Organization for Boating Access (SOBA) Conference in Springfield, Illinois, October 9-11, 2005.

Customer Service Program
The Louisiana Department of Wildlife and Fisheries' statewide Customer Service Program was established in 1999 to ensure the delivery of effective, efficient and responsive customer service to Louisiana residents, users of resources managed by the department and departmental employees.
Customer Service Program accomplishments for fiscal year 2005-2006 include:

- ongoing upkeep of the customer service comment database and tracking system via the customer service channels.
- development of the annual Customer Service Assessment Report.
- development of the annual Customer Service and Employee Action Plan.
- development and distribution of an internal subject-indexed telephone list, including parish contacts for enforcement, wildlife, inland fisheries and marine fisheries.
- development of a subject-indexed telephone list for use by the public placed on the department's Internet contacts page.
- conducted customer service training of new employees during Employee Orientation classes.

- discussed the status of the department's Customer Service Program during the Office of Management and Finance's statewide training sessions in March 2006.
- presented the results of a survey of department employees to the appointed authorities.
- published the results of a survey of license vendors (administered in May 2005) that was used to assist the department's decision-makers in the selection of a license vending system.
- presented instructional videos during employee safety training classes. Videos discussed the benefits of workplace diversity and the dangers of ignoring educational and training opportunities.
- assisted the Louisiana Department of Transportation and Development in the creation of its Customer Service Program.

In June 2006 the Customer Service Program was disbanded and duties dispersed among various employees within the department.

Louisiana Nutria Harvest and Environmental Impact Project
The Socioeconomic Research and Development Section, in cooperation with the LSU Department of Agricultural Economics and the Coastal Fisheries Institute, began a project in fiscal year 2003-2004 to examine the economics of nutria pelt harvests and the impact of nutria populations on Louisiana's coastal marsh. This project consists of three main stages:

- Estimation of Supply Curve for Nutria Pelts in Louisiana Coastal marshes - This stage developed a supply curve for nutria pelts using historical data for Louisiana nutria harvests and prices plus environmental variables such as winter severity and alligator stock levels. This allowed the estimation of expected harvests under alternative trapper incentive levels (bounties).

- A Bioeconomic Model of Nutria Harvests and Related Impacts on Louisiana Coastal Marsh - This research employed a published biological model of nutria populations, marsh biomass and wetland acreage developed by the USGS National Wetlands Research Center in Lafayette, Louisiana in order to examine the efficacy in maintaining coastal marsh of alternative nutria harvests under various price levels. This research provided the basis of a Master's degree thesis in the Louisiana State University Environmental Studies program.

- Estimation of Nutria Pelt Demand - This portion of the project examined the factors that influence the trapper-level demand for nutria pelts in Louisiana. Researchers have obtained domestic fur harvest data for several species from the United States Department of Agriculture and international trade data from the United Nations and have pursued means of assessing cultural and market trends affecting the demand for fur and fur products.

LDWF Language Assistance Plan
The United States Fish and Wildlife Service (USFWS), a federal agency that works in cooperation with the Louisiana Department of Wildlife and Fisheries (LDWF) and funds activities conducted by this agency, notified LDWF of the need to develop a Language Assistance Plan (LAP) to improve the access of persons with limited English proficiency (LEP) to LDWF programs.

The Socioeconomic Research and Development Section was given the task of developing an effective language assistance plan for the department. Following the completion of the self-assessment process, the SRD Section started two surveys in January 2005 designed to assess the language assistance needs of its customers.

The first assessment effort focused on department employees' telephone and other personal contacts. For two days of each month, each employee was asked to tally that day's total number of contacts with people from outside the department and to record how many of these customers exhibited limited English proficiency.

The second assessment effort consisted of a mail survey sent to 20,000 customers, especially commercial fishermen. This survey asked respondents to identify their primary language, proficiency in English and the extent and nature of their interaction with the Department of Wildlife and Fisheries. These surveys continued through November 2005. An assessment of the results was published in the spring of 2006.

Louisiana Birdwatching Festivals Economic Assessment Project
The SRD staff began an investigation into the economic impacts of birdwatching by assessing the financial contributions of birding festivals to two Louisiana towns. The first survey asked attendees of the April 2004 Audubon Country BirdFest in St. Francisville to report the extent of their birdwatching activity and to quantify their expenditures in West Feliciana Parish during the festival. The results of this survey were published in February 2005. The second survey, funded by the Barataria-Terrebonne National Estuary Program, asked attendees of the April 2005 Grand Isle Migratory Bird Festival to describe their birdwatching activities and expenditure patterns in Grand Isle and the rest of Louisiana during the three-day event. The results of this survey were published in the fall of 2005.

Louisiana Senior Sportsman Survey
In cooperation with the Wildlife Division of LDWF, a survey instrument was developed to gauge the participation in various hunting and fishing activities by purchasers of the Senior Sportsman's License. Surveys were mailed to 10,000 license holders in the spring of 2005. A preliminary report on the hunting activities of respondents and statewide estimates of senior hunting activity was provided to the Wildlife Division in the spring of 2006. Final hunting and fishing reports will be published in 2007.

OFFICE OF WILDLIFE

The Office of Wildlife consists of two divisions, the Wildlife Division and the Fur and Refuge Division.

WILDLIFE DIVISION

The Wildlife Division is responsible for the state's wildlife conservation program and gathering biological data to properly manage wildlife resources.

FUR AND REFUGE DIVISION

Active marsh management is the primary responsibility of the Fur and Refuge Division. Responsibilities of the division are divided into eight major categories: Coastal Stewardship Operations; Fur and Marsh Management; Alligator Management; Permitting and Mineral Management; Rockefeller Refuge; Habitat Conservation; Education and Maintenance.

RESEARCH AND MANAGEMENT

A wide range of research and management work is conducted in order to maintain healthy productive populations of game and to provide recreational opportunities for citizens to enjoy these species. Staff biologists gather data on game birds and animals, largely for use in formulating hunting regulations and development of habitat management recommendations. They develop workshops for the department and other agencies' personnel training and present seminars to the public. In addition, the staff represents the department on state, regional and national committees, providing wildlife input to a wide array of public agencies, non-governmental organizations (NGOs) and private industry. The game species programs are White-tailed Deer, Upland Game, Wild Turkey and Waterfowl. Hurricanes Katrina and Rita impacted species of wildlife and their habitats differently. Considerable time was also spent on the development of an "Initial Impacts of Hurricanes Katrina and Rita to Wildlife and Their Associated Habitats in Louisiana" document in conjunction with the Fur and Refuge Division, as well as doing ground surveys.

White-tailed Deer

During the 2005-2006 deer season, 152,200 deer hunters in the state harvested 209,200 white-tailed deer. On wildlife management areas (WMAs) during managed deer hunts, there were 2,895 deer harvested. The total hunter effort for the managed deer hunts was 30,008. The Deer Management Assistance Program (DMAP) cooperators harvested 16,656 deer. There were 809 clubs and landowners enrolled in this program. Louisiana Antlerless Deer Tag (LADT) Harvest in 2005 was approximately 11,340 with 1,012 cooperators enrolled.

Deer harvest information was entered into a computer program for analysis and evaluation. This data was used to establish deer seasons for the 2006-2007 season. Harvest data for WMAs and DMAP cooperators are summarized in Federal Aid W-55-20 Report.

Deer harvested during the years 2004-2006 will be documented in the fifth LA Big Game Recognition Program. Trophy deer that qualify for the State Record List are added to that list annually.

Disease and parasite investigations continued on both private and public lands. Preparations and coordination for the new Deer Telemetry Project continued and trapping will begin in February 2007. Semen from several antlerless bucks, including a 7.5-year-old, were successfully collected and stored for further research. Deer herds were again sampled for Chronic Wasting Disease (CWD) in 2005, with 972 samples collected from around the state. All samples tested negative for the disease. Further collection efforts were done in cooperation with SCWDS to locate the new BTV virus found in St. Mary parish.

Upland Game

Dove

Populations have been monitored nationwide since 1953 by a call-count survey. This survey is used by the U.S. Fish and Wildlife Service (USFWS) to monitor mourning dove population trends. Biologists record the number of doves heard calling for a prescribed time during the nesting season along certain roadsides. Louisiana's dove population is monitored during May and June along 19 routes randomly located throughout the state. The Louisiana breeding population index based on doves heard along the routes was 12.0. This represents a 25.0 percent decrease in doves heard from 2005. The 10-year and 40-year trends illustrate increases of 0.4 percent and 1.2 percent annually, respectively.

Dove hunting regulations for Louisiana in 2005-2006 were set at 70 days with a bag limit of 12 birds. Shooting hours remained unchanged from the year before, allowing all-day hunting, except on opening weekends of each segment when hunting was restricted to afternoons only. A survey of resident license holders indicates that approximately 37,300 Louisiana hunters harvested about 679,300 doves during the 2005-2006 hunting season. An estimated 32,500 Eurasian collared-doves were also taken.

In addition to dove fields on 12 WMAs, the department leases property from private landowners for public hunting. This land is leased for public hunting on opening day only. In 2005, two fields totaling 613 acres were leased. During the opening day hunt, 291 hunters participated, bagging 513 doves. Hurricane Katrina struck immediately prior to opening day of the dove season.

In the spring of 2003, the USFWS adopted a National Mourning Dove Harvest Management Plan. The plan was stepped down to each management unit during 2003-2004. Determining current harvest rate was identified as a key component of each management unit plan. Wildlife Division personnel banded approximately 2,300 doves during July-August 2005 as part of a 26-state pilot banding program.

Quail

Statewide fall whistling counts were conducted on 36 randomly located routes and an additional four routes on department WMAs and the Kisatchie National Forest. All regions of the state exhibited stable levels relative to the prior year. However, all regions exhibit long-term declines. Inferences about population status and habitat conditions were developed based on the combined results of these two survey techniques and general observations by department personnel during the breeding season. Data are summarized in the Federal Aid W-55-20 Annual Report.

A survey of resident license holders indicates that approximately 1,300 Louisiana hunters harvested 14,900 quail during the 2005-2006 season. This year hunters were also asked about their harvest of pen-raised quail. About 3,000 hunters harvested over 70,000 pen-raised quail.

Work continued on a research project to investigate response of bobwhite quail to habitat enhancement by use of selective herbicides that was begun in the fall of 2001. The department contracted with the LSU School of Renewable Natural Resources to conduct this project.

In an effort to address long-term population declines in bobwhite quail and other birds dependent on grassland habitat, the department has formed the Louisiana Quail and Grassland Bird Task Force. The task force is composed of representatives from at least 18 organizations or agencies and is charged with developing and implementing a plan to address the population declines of bobwhites and other grassland birds. The task force met two times

during fiscal year 2005-2006 and collaborative work began to develop demonstration areas.

Woodcock
A woodcock banding program was initiated in 1990 to determine sex and age ratios, site fidelity, movement patterns and harvest rates of woodcock wintering in Louisiana. From November 2005 through January 2006, 36 woodcock were banded on Sherburne WMA. One direct band recovery (3 percent) by hunters was reported. Eight indirect (one or more years after banding) were reported, including one from Michigan and another from West Virginia. Hunters on Sherburne also provided data on hunt characteristics through use of mandatory self-clearing stations. Data are summarized in the Federal Aid W-55-20 report.

The department participated in the USFWS' Annual Woodcock Wing Bee in 2005. Data derived from aging and sexing about 12,000 woodcock wings were used to develop trend data on woodcock production and hunter success. These data, in combination with breeding bird surveys, are used to develop management strategies for woodcock. Although many people in Louisiana consider woodcock an underutilized species, Louisiana's harvest of woodcock at one time ranked among the nation's highest. However, the number of woodcock hunters has decreased by over 90 percent since their peak in the early 1980s. Nonetheless, Louisiana still consistently ranks fourth in the nation for woodcock harvest. A survey of resident license holders indicates that approximately 4,500 Louisiana hunters harvested 24,000 woodcock during the 2005-2006 season.

Wild Turkey
A poult production survey was initiated in 1994 to assess annual brood rearing success and monitor long-term production trends. The survey indicated a good to very good hatch in the western longleaf and south central portion of the state. The remaining three regions had good production.

The most recent hunter harvest survey indicated 21,900 turkey hunters harvested 8,600 wild turkeys during the spring of 2005. The wild turkey population in Louisiana is estimated at about 80,000 birds.

The department is supporting and participating in two wild turkey research projects. Wild turkey habitat use and ecology are being investigated on Sherburne WMA by a graduate student from the LSU School of Renewable Natural Resources with support from the department of the Louisiana Chapter of the National Wild Turkey Federation. In addition, the department is involved in a gobbler banding project in Washington Parish to develop harvest rate estimates. A reward band component was added to this project during the 2004 turkey hunting season.

Waterfowl
Louisiana has approximately 3.5 million acres of coastal marsh that winter large and diverse waterfowl populations. Aerial waterfowl inventories of the entire coastal marsh, as well as associated agricultural lands in north central and northeast Louisiana are conducted each winter.

The mid-winter inventory, conducted in early January, indicated 3.20 million ducks and 522,000 geese wintered in coastal marsh and inland areas of the Mississippi Delta during January 2006.

Based on federal harvest estimates, in the 2005-2006 waterfowl hunting season there were 48,000 active duck hunters that harvested 878,000 ducks. This represents an 8 percent decrease in the number of duck hunters and an increase of 7 percent in the duck harvest compared to the previous year. Species composition included 19 percent gadwall, 10 percent blue-winged teal, 15 percent green-winged teal, 12 percent mallard and 12 percent wood duck, with pintail, shoveler, wigeon, scaup and ring-necked duck comprising most of the remainder.

Goose harvest increased 25 percent in 2005-2006 to 158,000. White-fronted geese comprised 37 percent of the harvest and light geese (snows, blues and Ross') comprised 63 percent. Canada geese are an important bird in the bag locally, but were less than 1 percent of the total goose harvest statewide.

North American Waterfowl Management Plan
Louisiana is continuing to play an important role in the North American Waterfowl Management Plan (NAWMP). Large portions of two joint ventures are located in Louisiana: the Gulf Coast and Lower Mississippi Valley. The department has strived to maintain ongoing projects and other activities associated with the NAWMP. In fiscal year 2005-2006, survey, engineering and design work on the Manchac Shoreline Protection project funded by a North American Wetland Conservation Act (NAWCA) grant had to be reassessed as a result of damage to the project area by Hurricane Katrina and large increases in the cost of material and manpower. Two other NAWCA grant proposal were awarded: one to purchase bottomland hardwood habitat within the Sabine Island WMA and another to construct or rebuild levees and water-control structures providing waterfowl and shorebird habitat on Boeuf and Bayou Macon WMAs. On the Topan Unit of the Boeuf WMA, after test wells were dry, pumps were purchased and distribution channels were refurbished to use nearby surface water to provide early water for shorebirds, blue-winged teal and other waterfowl. In addition, funding, equipment, personnel and coordination were provided for a major waterfowl research project of high priority to NAWMP joint ventures in Louisiana: the Mallard Telemetry project conducted by Bruce Davis and Paul Link and supervised by Dr. Alan Afton. An experiment designed to assess commercial herbicide mixes on controlling woody plants encroaching on the Catahoula Lake basin was implemented with follow-up on effect of the applied chemicals scheduled for next fall. Department personnel also assisted with the ongoing NAWMP program assessment, the Grand Cote National Wildlife Refuge review, and the NAWMP effort to support continued Conservation Reserve Program contracts that provided breeding habitat in northern prairie areas.

The Louisiana Waterfowl Project (LWP), a private land wetlands development program, has completed its 15th year. This is a cooperative statewide program involving LDWF, Ducks Unlimited, U.S. Department of Agriculture/Natural Resource Conservation Service, various pipeline companies and selected private landowners. USFWS became a partner in 1999-2000. During 2005-2006, 12 new landowners participated in LWP resulting in the restoration or enhancement of 4,355 acres. Since program inception in 1992, over 72,000 acres have been restored or enhanced. LWP goals and activities in the northern part of the state continue to shift more towards the Red River Valley, toward more natural marsh or green-tree habitats and less agricultural areas. LWP south will focus more on marsh habitats and fallow rice fields in the coastal zone.

Wood Ducks
During 2005, the department banded 1,705 wood ducks, similar to the 1,605 banded the year before. Approximately 568 were captured in nesting boxes, and 1,135 were captured using cannon nets.

The wood duck box program completed its 16th year in 2005. Department personnel are now on a maintenance schedule for nest boxes with over 2,800 boxes now in use. LDWF focus is to replace old boxes rather than add to the total. Over 1,100 of those boxes are within Region VI. Box utilization is not evaluated every year, but has ranged from 45-100 percent in past years with an average utilization of about 80 percent.

LAND DEVELOPMENT

Land development involves both wildlife habitat enhancement and infrastructure improvement to accommodate public use of the 49 WMAs. Typical activities include road and bridge repair and construction, vegetation control, tree planting, water control structure operation, pump station operation, wildlife food plot development, and boundary maintenance. Coordination and monitoring of mineral exploration activities is also a function of the Wildlife Division on WMAs.

Forest Management
The mission of the Forest Management Program is to improve forest and wildlife habitat on WMAs through sound forest management, reforestation practices and active forest/wildlife research activities. This program also serves to demonstrate the integration of forest management and wildlife habitat management to private landowners.

Public Lands
General forest inventories were conducted on 18 of 19 scheduled compartments on 15 WMAs; one compartment inventory on Pearl River WMA was postponed due to Hurricane Katrina damage and respective access problems. Prescription developments were accomplished on 19 compartments across 14 WMAs, with two compartments, one each on Loggy Bayou and Walnut Hill WMA, delayed until fiscal year 2006-2007 due to treatment backlogs and access problems on the WMAs.

Harvest preparations, including sale layout, inventory, regeneration counts, marking, map work and timber sale proposal preparations were conducted on Boeuf, Buckhorn, Ouachita, Red River and Three Rivers WMAs. Amendments to existing contracts on Buckhorn, Little River and Spring Bayou were awarded due to stagnant market conditions associated with drought conditions and oversupply of wood from hurricane damaged areas. Timber harvests to improve wildlife habitat were conducted on Big Lake, Buckhorn, Grassy Lake, Little River, Ouachita, Red River, Russell Sage, Sandy Hollow, Sherburne, Spring Bayou and Three Rivers WMAs. Monitoring of these operations was performed by Forestry Section staff, with assistance from WMA technicians. Timber salvage operations occurred on Pearl River WMA as efforts to provide diversity of habitats and reestablish user access to the area heavily damaged by Hurricane Katrina.

Coordination was continued on Dewey Wills WMA with several research organizations attempting to establish an understanding of the oak decline the area is experiencing. Monitoring of seismic activities and assessment of tree damage occurred on Maurepas Swamp WMA. Ips beetle infestations occurred on Pearl River, Sandy Hollow and Lake Ramsey WMAs. The extended drought conditions coupled with the root damage that many pines experienced from the hurricane winds resulted in stressful conditions which the Ips beetles took advantage of this year. However, no southern pine beetle infestations/outbreaks were reported on WMAs this year.

Reforestation work was continued on other department properties with concentration on Buckhorn, Dewey Wills, Elbow Slough, Grassy Lake, Red River and Three Rivers WMAs. Activities included site development and preparation, seedling or seed planting, survival plot establishment and survival checks. Approximately 686 acres were reforested during the 2005-2006 season, including 375 acres of ag fields, 249 acres of timber harvest areas and 62 acres of replanted areas.

Acorn and various tree seed collections were conducted to ensure a seed and seedling source for future reforestation efforts. The annual WMA mast survey aids this effort by concentrating collection efforts where the most needed types of trees species are available. The mast survey also provides an indication of the future abundance of forest wildlife species.

TSI work continued on Sherburne with attempts to control Chinese tallow tree invasion by inspecting major skid trails in harvest areas and treating any stems found. Similar work was carried out on Sandy Hollow for Chinese tallow tree and cogon grass control. Monitoring this species invasion on Pearl River WMA, following the damage done by Hurricane Katrina, has been a priority in assessing any damage mitigation needs of this forest.

GPS work on WMA trails, roads, lakes, compartment and area boundaries was accomplished to aid in the overall WMA management program. Our Geographic Information Systems (GIS) program development continued with emphasis on historical data input relative to our WMA forest management activities and addition/deletion of roads/trails that could be used for management. Standardization of symbology and map formats was focused on across WMA responsibilities, enabling easier interpretation by all future users of this historical information.

Growth Monitoring Plots (GMPs) were established on Joyce, Hutchinson Creek and Spring Bayou WMAs. These permanent plots aid in monitoring habitat conditions and effects of our forest management program on the habitat components represented on the WMAs.

A Monitoring Avian Production and Survival (MAPS) project was continued on Sherburne WMA with seven MAPS stations being operated there, while an additional MAPS station was delineated on Pearl River WMA. Only a bird point count was accomplished this year on the Pearl River site due to manpower limitations in establishing the full MAPS setup. Forestry Section personnel provided the primary support for this project, expected to continue for 10 years. Results from this study will aid in understanding avian use of the different silvicultural treatments applied across the WMAs, as well as avian response to hurricane damaged sites (Pearl River WMA).

Research projects and new developments continued on WMAs to foster a better understanding of benefits for the forest, wildlife and people gained through appropriate and long-term oriented forest management practices. A study linked to the rediscovery of the ivory-billed woodpecker was initiated on Red River/Three Rivers

and Big Lake WMAs. The study is focusing on pileated woodpecker use of normal and modified silvicultural practices on these WMAs. Additional information on beetle colonization of these sites is being gathered to evaluate this important food source for woodpeckers, as well as to gain insight on management for stressed trees. Additional morticulture research was conducted on Tensas National Wildlife Refuge by the Forestry Section crew in coordination with other researchers from U.S. Geological Survey (USGS), USFWS, ARTNC, ANHC and AGFC.

Land Acquisition

Land acquisition and development for wildlife management purposes is the best way to ensure that there is sufficient quality habitat for the state's diverse wildlife resources. During fiscal year 2005-2006, one sale of 615 acres was completed. The property, located in Ouachita Parish was sold to the USFWS and added to the Black Bayou National Wildlife Refuge.

REGION I

Seven parishes in northwest Louisiana make up Region I: Bienville; Bossier; Caddo; Claiborne; DeSoto; Red River and Webster. Habitat consists primarily of rolling, mixed pine-hardwood and pine plantation habitat bisected by the Red River system and its associated bottomland agricultural lands. The Bayou Pierre, Bodcau, Jackson-Bienville, Loggy Bayou and Soda Lake WMAs are managed in Region I and encompass a total of 77,633 acres.

Personnel from Region I administered and managed numerous Wildlife Division programs. Programs included bobwhite quail spring and fall surveys, annual winter eagle surveys, spring dove call routes, dove banding, mast surveys, spring turkey gobble count surveys, turkey trapping and banding and release activities. The game and non-game breeder permit program was administered as well. Personnel also collected white-tailed deer for general herd health and reproduction projects, CWD monitoring and also administered DMAP/LADT activities. Personnel served as technical wildlife consultants to numerous private landowners, municipalities and state and local government officials and agencies.

Region I wildlife management areas are managed to provide diverse wildlife habitat supporting numerous game and non-game wildlife species and provide quality outdoor recreational opportunities for the public. A total of 31,808 user days were estimated for Region I WMAs. Region I personnel continued working with the Jackson-Bienville Wildlife Habitat Program which provided more than $27,000 of non-department revenue for the development of bobwhite quail, turkey and red-cockaded woodpecker habitat on Jackson-Bienville WMA. Funds were also provided to promote hunter safety and wildlife management education. Personnel also reviewed and monitored oil and gas exploration activities and interstate pipeline installations on several Region I WMAs.

REGION II

Eight parishes in northeast Louisiana make up Region II: East Carroll, Jackson; Lincoln; Morehouse; Ouachita; Richland; Union and West Carroll. Habitat types consist of rolling, mixed pine-hardwood forest, agricultural lands and Mississippi River bottomland forests. The Bayou Macon, Big Colewa Bayou, Floy Ward McElroy, Ouachita, Russell Sage and Union WMAs are managed in Region II.

Region II biologists conducted a wide range of activities including research and surveys involving mourning doves, Canada geese, wood ducks, wild turkey, bald eagles, bobwhite quail, shorebirds, white-tailed deer, waterfowl and other species. Additional effort was expended conducting public meetings, providing technical assistance to landowners relative to habitat management and wildlife populations, interacting with various universities as well as parish, state and federal agencies in reference to projects of mutual concern, conducting the alligator management program at the region level, and numerous additional projects.

Region II wildlife management areas were managed to provide habitat and population management for deer, turkeys, squirrels, waterfowl, rabbits, doves, shorebirds and other non-game birds, furbearers and other species. Recreational opportunities were provided to thousands of hunters, fishers, campers, sightseers and other public users. Recreational user days recorded for Region II wildlife management areas totaled 29,670. Either-sex modern firearm hunts for deer attracted 2,926 hunters resulting in a harvest of 350 deer.

Additional opportunity for bucks-only gun hunting, muzzleloader, archery and youth- only hunting yielded a reported harvest of 115 additional deer. Youth deer and dove hunters on the Floy McElroy WMA had a very successful season. Turkey hunting was provided on Bayou Macon and Union WMAs. A youth turkey hunt was held on Union WMA in cooperation with the Union Parish Chapter of the National Wild Turkey Federation. Ouachita and Russell Sage WMAs provided quality waterfowl hunting for several thousand persons including some who traveled from Missouri, Arkansas, South Carolina, Mississippi, Texas and other states.

WMA personnel performed a variety of development and maintenance functions such as boundary marking, road maintenance, water control structure operation, moist soil management, shorebird management, beaver and other nuisance animal control, farm contract supervision, equipment maintenance, public user data collection, vegetation control, food plot planting, reforestation and conducting managed hunts. The headquarters/check station on Floy McElroy WMA was improved to provide better customer service. Two miles of public access roads were re-surfaced with limestone rock on the Ouachita and Russell Sage WMAs.

REGION III

Six parishes in west central Louisiana make up Region III: Grant; LaSalle; Natchitoches; Rapides; Sabine and Winn. The Dewey W. Wills, Little River, Alexander State Forest, Camp Beauregard and Sabine WMAs are managed in Region III. Catahoula Lake and Elbow Slough are additional areas of responsibility.

All of these areas are managed to provide wildlife habitat and outdoor recreational activities. Total user days were estimated at 109,489. WMA activities were below normal because a significant percentage of the user group was involved with hurricane recovery efforts.

A variety of projects were implemented or completed on Region III WMAs in fiscal year 2005-2006. Efforts to improve the road system on Dewey Wills and Little River WMAs continued to be hampered by lack of funding. The pump and pumping station for the greentree reservoir on Dewey Wills WMA were rebuilt and

put into service. A special lottery deer hunt for the physically challenged was expanded on Sabine WMA in cooperation with the Wheeling Sportsman Association. A large portion of the WMA is set aside for one weekend strictly for the special hunt. Temporary stands are erected and volunteers and LDWF staff assist participants. The program has been well received.

Negotiations with USFWS to enter into a cooperative agreement to manage an approximately 800 acre tract for public use were initiated. Preliminary plans call for LDWF to manage the tract owned by USFWS for limited public hunting opportunities. The emphasis is to be on providing special physically challenged hunts. Ducks Unlimited, The Wheelin' Sportsmen Association and local businesses have pledged support for the program. Due to procedural processes within USFWS no hunting activity is expected until the 2008 season.

Routine maintenance activities on the state owned areas included road grading, culvert replacement, spot repairs, drainage improvements and beaver control. On all WMAs boundary work, sign replacement, self-clearing station maintenance, vegetation control and equipment and facility upkeep were performed. In addition WMA personnel conducted user interviews and operated weigh stations. Wildlife food plots were planted on Camp Beauregard, Sabine and Elbow Slough. Most WMAs have a number of wood duck boxes that require annual maintenance. Region III procured wood duck boxes for statewide distribution. The technical staff consulted with DMAP clubs and private landowners on wildlife and habitat management issues, trapped and banded wood ducks, collected CWD samples, participated in the dove banding program, compiled data and submitted reports and handled miscellaneous problems along with routine duties.

REGION IV

Six parishes in east central Louisiana make up Region IV: Caldwell; Catahoula; Concordia; Franklin; Madison and Tensas. Habitat types of this region are very diverse, ranging from upland mixed pine--hardwood forests in the west to the bottomland hardwood forests along the Mississippi River. Agricultural lands generally dominate the landscape, but the alluvial floodplains of the Boeuf, Black, Red, Ouachita, Tensas and Mississippi Rivers produce a rich and varied topography that supports a bounty of resident and migratory birds and mammals.

Centrally located in the town of Ferriday, the Regional office administers six department-owned WMAs: Big Lake; Boeuf; Buckhorn; Red River; Sicily Island Hills and Three Rivers. These WMAs provide the public with over 158,000 acres on which to hunt, fish and enjoy the natural areas of our state. The self-clearing check stations of Region IV recorded over 29,600 hunters and fishermen during 2005-2006, and almost 6,700 non-consumptive users (campers, backpackers, ATV riders, birdwatchers, etc.) can be added to this total. Estimated numbers of hunters, fishermen and non-consumptive users of Region IV WMAs exceed 99,000.

Almost 5,500 small-game hunters enjoyed a relaxing squirrel and/or rabbit hunt on Region IV WMAs. Whether a small game hunter chooses to still hunt or follow his pack of favorite beagles or mountain cur squirrel dog, the opportunities are available. The department continues to develop moist soil impoundments and greentrees for waterfowl hunters in Region IV, and the possibilities for acquiring former agricultural lands make expansion of waterfowl opportunities even greater. Turkey populations continue to expand after a decade of good poult production, and almost 1,200 turkey hunters harvested 90 turkeys on WMA property.

LDWF recognizes that the future of hunting and the outdoor sports depends on the involvement of our youth. Youth turkey hunts on Big Lake WMA and youth deer hunts on Boeuf and Red River WMAs have been popular events. During 2005-2006, youth deer hunts were scheduled for Big Lake and Three Rivers WMAs.

Region IV WMAs hosted seven UKC and PKC field trials and championship coon hunts during 2005-2006. The topography of the WMAs and the abundant coon population attract coon hunters and high-priced coon dogs from around the state. In some years, the Louisiana State Championship coon hunt is held on Big Lake WMA. Non-consumptive users of Region IV WMAs have been increasing, but nothing compares to the spectacle of the "Wish I Could ATV Trail Ride" held annually on Boeuf WMA. On June 3, 2006, 3,520 ATVs entered the WMA to attempt the Marengo Swamp Suicide Run, a 17-mile long trail ride through some of the muddiest and boggiest terrain in the region. Only some riders completed the course.

Private landowners in Region IV continue to respond positively to LDWF DMAP and LADT programs. Two hundred forty-five private landowners and hunting clubs enrolled 370,000 acres of property into the programs. From this enrolled acreage deer hunters harvested 4,700 deer (31 percent antlered bucks and 69 percent antlerless deer). This approximate 2:1 harvest ratio of does to bucks has remained relatively stable over the years, and it reflects the quality deer management guidelines that LDWF advocates. As part of the program, Region IV biologists provide these private landowners with biological habitat surveys and harvest recommendations.

If questioned, most people would associate Louisiana alligator hunting with coastal marsh and swamp habitats. But alligator hunting is becoming more and more popular every year in northeastern Louisiana. During 2005, the Region IV alligator program issued 481 tags to alligator hunters (316 tags to private land hunters and 165 to public lakes hunters). Three hundred seventy-two (77 percent) tags were used by 89 hunters. Alligator hunting in the Louisiana coastal zone may be largely seen as a commercial activity, but in northeastern Louisiana it is commonly enjoyed as a social event. Entire families submit applications for the public lakes lottery. Region IV alligator hunters continue to take trophy-size 12-13 foot gators.

During Spring 2006, the Region IV WMA staff completed construction of the Brushy Lake Nature Trail facility on Buckhorn WMA. This public use facility consists of two interconnected nature trails totaling three miles in length. This facility will provide year-round enjoyment and public education into the aquatic and terrestrial components of a bottomland hardwoods ecosystem.

REGION V

Nine parishes in southwest Louisiana make up Region V: Acadia; Allen; Beauregard; Calcasieu; Cameron; Evangeline; Jefferson Davis; Vermilion and Vernon. Habitat ranges from extensive coastal marshes, to prairies and vast agricultural areas, to hardwood bottoms, to rolling hills of pine plantations and mixed pine-hardwoods. The Clear Creek, Fort Polk, Marsh Bayou,

Peason Ridge, Sabine Island, Walnut Hill and West Bay WMAs are managed in Region V and encompass a total of 260,000 acres.

Region personnel administered a variety of Wildlife Division activities. These include environmental assessments, technical assistance, research, planning, development, management and alligator and nuisance animal programs. Technical advice is provided to the public, federal, state and national wildlife refuges and local agencies. Region personnel assist 179 private deer hunting clubs encompassing 364,595 acres with the department's DMAP and LADT. The region personnel participated in a nation wide dove banding program by trapping and banding 50 doves. Special public dove hunts were held on two areas totaling 1,800 acres of land the department leases in September, with 310 hunters harvesting 1,443 doves. Region V handled a large number of resident alligator hunting applications issuing 101 licenses, 786 tags and 11 non-resident alligator hunting license and the shipping requirements of alligator hides.

The region WMAs are managed for a variety of fish and wildlife species and provides outdoor recreational opportunities. These areas are readily accessible and are very popular with the public. Along with public hunting and fishing opportunities, these areas provide many types of non-consumptive activities. A total of 42,213 people (337,704 hours of recreation) used these areas from November 2005 - October 2006.

Managed deer hunts on the four largest WMAs within the region resulted in 21,307 hunting efforts and harvesting 787 deer. Two areas offer special deer seasons for youth and handicapped hunters. Over 1,392 turkey hunters harvested 65 gobblers from three WMAs. Special youth turkey hunting seasons were established on two areas which were great successes.

The WMAs are leased free of charge to the department for public use from private landowners (Forest Capital Partners LLC, Roy O. Martin, U.S. Army, U.S, Forest Service, Forest Investments, Calcasieu School Board, Molpus and the State of Louisiana). To continue these lease areas, region personnel are required to meet and negotiate annual agreements with the landowners. The leases help the landowners properly manage their properties for wildlife and public recreation.

Habitat Manipulation

Co-partnered with Cleco Power and National Wild Turkey Federation to establish turkey food plots on service right-of-ways and abandon roads within Clear Creek and West Bay WMAs. Co-partnered with U.S. Army and U.S. Forest to establish turkey and quail food plots on Fort Polk WMA

REGION VI

Thirteen parishes in south central Louisiana make up Region VI: Avoyelles; Assumption; most of Iberville; Iberia; Lafayette; Pointe Coupee; St. Landry; St. Martin; St. Mary; Terrebonne; West Baton Rouge and portions of West Feliciana and Ascension. Habitat types range from mixed pine-hardwoods, to backwater bottomland hardwoods interspersed with agricultural lands, and cypress-tupelo swamps, to open-water areas. The Acadiana Conservation Corridor, Attakapas, Elm Hall, Grassy Lake, Pomme de Terre, Sherburne, Thistlethwaite and Spring Bayou WMAs are managed within Region VI and encompass a total of 120,109 acres. One federal refuge, a U.S. Army Corps of Engineers (USACE) property, is managed within Region VI as well.

Region VI personnel administer and manage a variety of wildlife oriented activities. Region personnel work in conjunction and provide technical advice to many different agencies, including other state agencies, USFWS, USACE, Department of Natural Resources (DNR), Department of Environmental Quality (DEQ), Department of Agriculture and local parish entities. Region personnel administer environmental assessments, technical assistance, research, development/management and alligator and nuisance animal programs. Personnel assist with projects ongoing in the region, such as woodcock, turkey, black bear and non-game research projects. Region biologist worked with 173 DMAP clubs encompassing over 455,973 acres on which approximately 5,500 deer were harvested. In addition to DMAP, LADT tags were issued to 166 cooperators, involving 157,581 acres on which approximately 1700 deer were harvested.

Region VI WMAs are maintained and managed to provide outdoor activity opportunities for all user groups, including both consumptive and non-consumptive. WMA personnel performed a variety of development and maintenance functions such as boundary marking, building maintenance, road maintenance, water control structure operation, moist soil management, beaver and other nuisance animal control, farm contract supervision, equipment maintenance, public user data collection, vegetation control, food plot planting, reforestation and conducting managed hunts. Recreational user days recorded on Region VI WMAs totaled 57,035 by hunters, fishers, campers, sightseers, bird-watchers and other public users. Managed deer hunts were held on these areas, where over 7,800 user-days were recorded, with 565 deer recorded harvested on these hunts. In addition to the managed (either-sex gun) hunts, bucks only, youth/handicapped, archery and muzzleloader hunts also took place, where an additional 500 deer were harvested. Turkey hunts were held on four WMAs, where 73 turkeys were harvested by an estimated 865 users. Dove fields are maintained, along with many acres of food plots. Biologists and technicians maintain and monitor over 800 wood duck boxes, conduct pre-season banding, collect samples for Chronic Wasting Disease and other disease testing, respond to numerous nuisance animal complaints, illegally held deer and fawn/sick deer complaints.

Youth Lottery deer, duck and turkey hunts were held in the Region, with great success on these hunts.

Improvements to Region WMAs included widening of the back Big Alabama Boat Launch, with a walk-out pier built and limestone and culverts placed on roads, trails and parking areas as needed on all region WMAs.

REGION VII

Eighteen parishes in southeast Louisiana make up Region VII: most or all of Ascension; East Baton Rouge; East Feliciana; Livingston; Orleans; Jefferson; St. Helena; Tangipahoa; Washington; St. Tammany; St. Bernard; St. James; St. John; Plaquemines; St. Charles; Lafourche; West Feliciana and a portion of Iberville. Habitat types range from marshes and swamps to rugged loess bluff uplands. The Pearl River, Joyce, Manchac, Sandy Hollow, Ben's Creek, Hutchinson Creek, Tunica Hills, Maurepas Swamp, Tangipahoa Parish School Board and Lake Ramsey WMAs are managed in Region VII and encompass a total of 147,056 acres.

The WMAs are open for such public use as hunting, fishing, bird watching, sight seeing, boating, hiking, horseback riding,

photography and berry picking, as well as many other outdoor recreational activities. Over 65,000 user days were recorded on the WMAs during fiscal year 2005-2006. An alligator season was allowed on four WMAs. Region personnel maintained WMA boundaries, buildings, equipment, roads and trails. Managed permit hunts were conducted on several WMAs.

Hurricane Katrina devastated southeast Louisiana on August 29, 2005. Pearl River, Sandy Hollow and Ben's Creek WMAs were significantly impacted. Nearly $21 million in timber loss, with 89 percent damage to red oaks, 74 percent damage to white oaks and 73 percent damage to gums, was estimated on Pearl River WMA alone. Shortly after the storm, area personnel began the task of clearing roads and trails utilizing heavy equipment and chainsaws. In total, over 29 miles of roads and trails on Pearl River WMA, 17 miles of roads and trails on Ben's Creek WMA and 30 miles of roads and trails on Sandy Hollow WMA were cleared. In addition, area personnel made repairs to the fence and bunkhouse at the three WMAs. The West Pearl River was completely blocked with debris after the storm creating a potential flood and navigation hazard, and threatening the lower portion of Pearl River WMA. Region personnel assisted the Fur and Refuge Division with clearing the obstruction and restoring the natural flow of the river by utilizing the department's dredge and tug boat.

Sandy Hollow WMA was intensely managed for mourning dove and bobwhite quail. Over 15 miles of bobwhite quail field trial courses, seven dove fields, 10 acres of food plots and 15 food strips were prepared. Controlled burning was conducted on over 1,500 acres. Approximately 65 food plots were planted and monitored on WMAs.

Region biologists and technicians worked with 212 DMAP cooperators and 76 LADT cooperators, maintained 325 wood duck boxes, participated in the statewide mourning dove banding program, responded to numerous deer and nuisance animal complaints, provided technical assistance to the public, conducted public meetings and collected hundreds of samples for Chronic Wasting Disease testing. Wood duck trapping operations were conducted with 407 being banded.

EDUCATION

Conservation education is a vital part of the Louisiana Department of Wildlife and Fisheries mission. The Education Section, within the Wildlife Division focused on three main areas: Hunter Education; Aquatic Education and General Wildlife Education. Hunter education courses, including bowhunter and muzzleloader, and aquatic education programs, such as public fishing clinics, teacher workshops, school visits, public seminars and educational displays, are some of the methods that were used to reach the public and spread the message of wildlife conservation.

Hunter Education

The department's Hunter Education Program provided training and certification in hunter education, bowhunter education and muzzleloader education as well as assisting with other related educational programs.

Administration

Certification cards for hunter, bowhunter and muzzleloader education student and instructor courses were provided as needed for persons completing these courses. Hard copies were filed as well as computer based records for courses administered.

The education manager and hunter education supervisor attended the Region IV Hunter Education Administrators conference in Louisville, KY. Plans are being made to produce a new version of the current hunter education CD-ROM course. The education manager attended the International Hunter Education Association convention in Atlanta, GA. Louisiana will host the 2007 convention in Baton Rouge. Hurricanes Katrina and Rita resulted in a loss of some education facilities. At the Region V Lake Charles office, a storage shed used to house hunter education supplies was totally destroyed and an A/C unit was ruined at the Bourg hunter education office.

Student Certification

Hunter and bowhunter education courses for this period were down due to Hurricanes Katrina and Rita. Both of these storms struck at a time when the majority of courses are taught just prior to hunting season. A total of 436 hunter education courses were provided to the general public statewide resulting in the graduation of 14,029 students. Bowhunter education courses were also provided for persons hunting on national wildlife refuges and out of state where required. A total of 58 bowhunter education student courses were taught with 1,260 people being certified. Although not mandatory in Louisiana, muzzleloader workshops are provided to the public. One workshop was held with 17 persons attending. Certification is provided through the National Muzzleloading Rifle Assoc. A muzzleloading trainer's course was conducted for LDWF education staff. Training was provided by representatives of the National Muzzleloading Rifle Association. This training will enable education staff to certify persons as muzzleloading instructors. The alternative study method for administering hunter education continues to be offered to the public. Out of the 14,029 students certified in 436 hunter education courses, 489 of these students in 35 courses accounted for alternative study method.

Instructor Training

A total of 157 new volunteer hunter education instructors were trained and provided with credentials to teach hunter education in the state of Louisiana through 12 instructor courses. In addition three instructor courses resulted in 36 persons being certified to teach bowhunter education. One statewide workshop was planned and carried out at Camp Grant Walker in Alexandria, LA. with 110 instructors in attendance. Instructors received presentations on working with the hearing disabled, tree stand safety and proposed regulation for tagging of white-tailed deer. Also, an in-service volunteer workshop on wildlife management was conducted with 17 volunteers in attendance. Instructors were given information on the management techniques of white-tailed deer, upland game and forestry.

Shooting Ranges

The hunter education program maintained five department owned shooting facilities which were used for hunter education and to provide the public with a safe place to engage in recreational target shooting. Shooting ranges staffed and operated statewide were Bodcau WMA shooting range, Woodworth shooting range, Sherburne WMA shooting range, Waddill shotgun range and the Pearl River WMA shooting range.

Both the Bodcau and Sherburne Ranges are staffed by LDWF employees. The Woodworth Range is operated by both staff and volunteers of the Louisiana Bayou State Muzzleloading Association. This range received a 20 foot extension to the existing rifle range. Extra cover firing points were needed for

special scheduled shoots. The Pearl River Range continues to be managed by Southeast Louisiana Firearms Safety, Inc. (SELF) through contractual agreement. A new concrete bridge crossing was constructed across a bayou at the range entrance. An older wooden bridge which restricted water flow resulted in annual flooding and bank erosion. The Pearl River Range received moderate damage from Hurricane Katrina which was repaired by SELF. The range was operational within six months following the storm.

Aquatic Education
The education section of the LDWF introduces people to the sport of fishing and promotes awareness of the aquatic resources in the state through both public programs and teacher training.

Administration
Volunteer hours documented from aquatic education programs were stored electronically as well as hard copies filed. A pontoon boat was purchased and based at the Bourg office facility to use for various aquatic education programs. The aquatic education section hosted the Project WILD National Conference in New Orleans in June 2006. The following conferences were attended: National Marine Educators Assoc.; Southern Assoc. of Marine Educators; Louisiana Science Teachers Assoc.; Louisiana Environmental Education Symposium and American Fisheries Society Conference.

Curriculum and Training
Clinics - Aquatic education clinics were held statewide that resulted in 7,286 volunteer hours generated. Subjects covered in aquatic education clinics include outdoor ethics, fish identification, tackle selection and fishing techniques. Participants also are involved in actual hands on fishing.

Workbooks - Three publications, *Fishing For Fun*, *Let's Go Fishing* and *Finnie The Fingerling*, were distributed to teachers in the school system for classroom use. A total of 9,017, 13,676 and 4,510 workbooks were used respectively. These publications promote an appreciation of aquatic recourses and their habitat.

Teacher Workshops - Teacher workshops are conducted statewide in an effort to provide training in aquatic education that can be brought back to the classroom. The following workshops were conducted:

- *Project Aquatic Wild* - Teachers are provided with guidance and materials to conduct classroom activities to make students aware of aquatic resources and their habitat. A total of 195 teachers were trained in nine workshops on the use of Project Aquatic Wild materials.

- *Coastal Wetland Workshops* - Coastal wetland workshops were held to train teachers on the subject of wetlands ecology in costal habitats. Through a grant from Coastal Impact Assistance Program (CIAP), teachers were provided with resources and trained to conduct in-service workshops to in turn train other teachers which would allow them to bring this vital information into the classroom.

Special Programs
The aquatic education section assisted in camps that introduce people to outdoor aquatic recreation and ethics.

Marsh Maneuvers - This program is conducted in conjunction with the LSU Extension Service. Four camps were held which were attended by students enrolled in 4-H. Students were given an opportunity to explore Louisiana's costal wetlands at the LDWF Rockefeller Refuge and study the problems that plague our fragile coastal environment.

Hatchery Education
Educational programs were held at the Booker Fowler hatchery in an effort to demonstrate the techniques used to raise fish in an artificial environment. Tours of the hatchery were conducted for school students, as well as the general public. Education materials and special presentations were made available through the visitor's center. One workshop was held to provide teachers with the skills and materials necessary to teach students hatchery education in a classroom environment.

Native Fish in the Classroom - This unique program allowed students to witness the miracle of fish going from an egg to the fingerling stage in a classroom environment. Students maintain a nursery aquarium and are given paddlefish eggs from LDWF. Fingerlings raised are returned to the wild. A total of four new teachers were trained to conduct this program. Twenty schools are now participating in the program.

Finnie the Fingerling - This workbook was developed to provide guidance on the inner workings of how the day to day operations of a fish hatchery are conducted. Readers are taken on a guided tour by "Finny the Fingerling" of the Booker Fowler Fish Hatchery. Visitors are provided copies.

General Wildlife Education
National Hunting & Fishing Day
The general public was shown appreciation of its support by being invited to join LDWF in an open house atmosphere that involves hands on activities and a closer look as department sponsored programs. The Hunter Education Section provided training for the public in the safe use of shooting equipment. Three department sponsored events of this type were held statewide.

BOW
Becoming an Outdoors Women continues be a popular program with women interested in learning more about outdoor recreational sports. Hunter education staff members conducted activities which taught the safe handling of equipment for hunting and recreational shooting. One statewide event was conducted.

FUN Camp
Families Understanding Nature provides a both fun and education to a parent and youth through a weekend of staff lead outdoor activities. Family members are introduced to the safe use of firearms and other recreational shooting equipment. The hunter education staff participated in one FUN Camp for fiscal year 2005-2006.

ROCKEFELLER WILDLIFE REFUGE

Rockefeller Wildlife Refuge was created in 1920 through a land donation developed by E.A. McIlhenny. He persuaded the Rockefeller Foundation to deed the area to Louisiana for preservation and protection of migratory birds. The area is intensively managed for waterfowl, and is one of the most important wildlife areas in the United States.

On September 24, 2005, at approximately 1 am, category 3 Hurricane Rita struck the coastline of Cameron Parish with 120 mph winds and a 15 foot storm surge.

Prior to landfall, the storm surge from this powerful hurricane inundated parts of coastal south Louisiana from New Orleans to Sabine Pass. This event caused catastrophic damage to the infrastructure at the refuge, as well as causing significant beach erosion and interior marsh loss in some areas. The only usable buildings remaining at the refuge headquarters complex were the office, general quarters and the four residences. These buildings were elevated and received major damage, but were temporarily repaired for use. The West End Dormitory, while also elevated, experienced major roof damage and consequently interior water damage. The shop, lumber shed, airboat shed and equipment shed will have to be completely refurbished.

Initial response of personnel was to assist the Office of Emergency Preparedness with search and rescue operations and major debris removal. After the roads became passable and the emergency orders lifted, refuge staff began efforts of cleanup and recovery despite 16 of 25 employees having lost their homes and 23 of 25 employees being displaced.

Efforts were quickly made to provide shelter for refuge staff, assist with basic needs of employees and assess damage to infrastructure. The U.S. Fish and Wildlife Service (USFWS) was gracious in loaning 10 travel trailers to the refuge to house employees, and staff quickly secured a large portable generator to assist with cleanup efforts. Once the generator electricity was established to the office building and others, recovery efforts slowly progressed. Phone and potable water services were reestablished within weeks. Months later sewage service was reestablished. Gas service for heating and cooking were not reestablished before the end of fiscal year 2005-2006. Recovery efforts have been slow. Temporary repairs were made to critical water control structures and levees, but no major repairs were permitted to begin by the end of fiscal year 2005-2006. Several portable buildings were obtained and used as temporary laboratory and storage facilities until permanent structures could be built. To aid in orderly recovery the administration employed the architectural firm of Champeaux, Evans and Hotard to produce and develop a master plan and planning document. The first meeting of the consultants with LDWF administrators and Rockefeller staff was June 7, 2006.

Marsh Management, Restoration, and Mineral Management

Rockefeller's staff maintains over 200 miles of levees and 40 water control structures which result in conservation of approximately 76,000 refuge wetland acres, and additionally enhances water management capability of 100,000 private sector acres within the Mermentau River Basin. Objectives of maintenance and manipulation of the refuge's system of levees and water control structures vary somewhat by management unit, but generally goals are to maintain marsh health, provide conditions favorable for production of waterfowl food plants, and incorporate multi-species management when possible.

Following Hurricane Rita most water control structures located on the refuge experienced some degree of damage, however many required only minor repairs. Unfortunately many of the protection levees for impoundments were severely eroded from the storm surge. While many of the minor repairs to control structures were made in winter 2005/2006, restoring levees to pre-hurricane conditions did not begin. Without repairs to the levee systems, several storm systems have pushed minor tidal surges into the fragile marshes of the refuge and lower Mermentau Basin.

It is estimated that the hurricane caused approximately $16 million worth of damage at Rockefeller Refuge. Considerable time was spent evaluating and documenting damage. Many levees and water control structures were damaged. The East End Locks, Big Constance, and Little Constance structures were manually operated to remove floodwater from the storm and manage water levels and water salinities after the 10-foot plus storm surge receded.

The stop-log bays were damaged by Hurricane Rita's storm surge at the Unit 3 southeast water control structure. The stop-log bays were removed allowing flow from the unit and prohibiting salt water.

The Dyson Bayou Plug was also damaged by Hurricane Rita. Department personnel were able to use a spud-barge mounted dragline to repair the damage and prohibit salt water intrusion into Unit 6 and the lower Mermentau Basin.

Mineral activity was interrupted by Hurricane Rita. Though oilfield equipment and infrastructure were damaged by the storm, no spills or catastrophic damage occurred. All wells were shut-in prior to the storm. Petro Quest Energy was in the process of drilling a deep well south of Deep Lake near the old Meridian site. The rig was damaged by the storm and had to be removed from the refuge. The rig returned and completed the $22 million venture. It unfortunately ended with an unsuccessful dry hole.

Hillcorp Energy had a barge break loose as a result of Hurricane Rita and damaged the southeast Unit 4 water control structure. The company is making plans to replace the damaged structure. Hillcorp, Exxon/Mobil and Henry Production continued plans to remove flow lines and materials which have no future utility on the refuge.

Both controlled burns and unwanted lightning fires occurred on Rockefeller Refuge during fiscal year 2005-2006. Before the hurricane, lightning fires burned 3,000 acres during July and August of 2005 in Price Lake, Units 3, 4 and 6. Additionally, 250 acres of drift resulting from Hurricane Rita was burned in Unit 8 and an area south of Unit 8 within Unit 6. Controlled burning in January 2006 occurred on 2,900 acres in Units 6 and 14, Price Lake and the tidal marsh south of Unit 14 to remove rough and litter. These controlled burnings reduce the chances of unwanted lightning fires, set back vegetative succession and promote the growth of desirable wildlife food plants. Burning may be limited on the refuge in the foreseeable future to allow recovery of hurricane damaged vegetation.

Habitat Enhancement/Restoration

Four marsh projects enhanced 25,950 acres during fiscal year 2005-2006. Projects included water control structure and plug repairs. Hurricane Rita's storm surge washed around the water control structures at Price Lake and at Unit 1 compromising water level and water salinity control in the management units. Repairs restored management capabilities within the units.

Work continued on a dedicated dredging project for the reclamation of 170 acres of brackish and salt marsh. Plans are to use a hydraulic dredge to deposit fill in each of three sites ranging in size from 4.7-107 acres. Oystergrass will be planted in the salt marsh creation sites and marsh hay cordgrass and oystergrass will be planted in brackish marsh creation sites. Reimbursement for the work will be from the newly established Rockefeller Mitigation Bank.

Providence Engineering in conjunction with the Louisiana Department of Natural Resources proposed a beneficial use of storm debris project at Rockefeller Refuge. The proposed site is located along the east side of East End Locks road. Three cells will be established and various percentages of storm debris material will be mixed with mud dredged from the East End Headquarters Canal to create marsh within the cells. The site will be planted with marsh-hay cordgrass.

The weather station was destroyed by Hurricane Rita in September 2005 causing an incomplete precipitation data set for fiscal year 2005-2006. It was reestablished in January 2006. The refuge experienced drought conditions during late winter, spring and early summer of 2006. Average monthly rainfall was 1.6 inches from February-June 2006. From 1999-2005 rainfall averaged 4.5 inches per month for the same time period. Marsh water salinities ranged from 12.7 ppt on October 24, 2005 to 3.1 ppt on June 23, 2006 at the Superior Bridge. A combination of low water levels and elevated salinities through spring 2006 negatively impacted Rockefeller Refuge wetlands and the region as a whole.

Rockefeller Refuge experience below average rainfall in fiscal year 2005-2006 with nine out of 12 months receiving rainfall amounts below their seven year averages. Total rainfall amounted to 49.35 inches last fiscal year, which is an 11.5-inch (18 percent) deficit compared to the seven year average.

Waterfowl Program

Rockefeller and New Iberia biological staff conducted five waterfowl surveys on three coastal refuges, one waterfowl preserve, and four wildlife management areas (WMAs) which included: Rockefeller Refuge, State Wildlife Refuge, Marsh Island Refuge, White Lake Wetlands Conservation Area, Atchafalaya Delta WMA, Point-aux-Chenes WMA, Salvador WMA, and Pass-a-Loutre WMA.

Fur and Refuge Division biologists completed the 12th year of a statewide mottled duck banding program during fiscal year 2005-2006. Department personnel banded 2,450 mottled ducks this year and 24,538 from 1994-2006.

Alligator Removal and Fur Trapping

A successful nuisance alligator trapping program to remove animals from high human use areas was conducted on Rockefeller Refuge between September 14-19, 2005. All alligators were harvested before Hurricane Rita struck the area in September 2005. Eight hunters removed 320 alligators in six days. Average size was 7.36 feet with an average live length value of $33.60 per foot.

No fur trapping occurred on Rockefeller Refuge during fiscal year 2005-2006 due to the low numbers of furbearers present on the Refuge after Hurricane Rita which caused a 10-foot plus storm surge over the marsh. Additionally, trappers would have had a hard time trapping due to the loss of community infrastructure, equipment, housing, etc. from the storm.

Watchable Wildlife Program
Seven helicopter survey days totaling 41.7 hours were used to monitor Louisiana's nesting bald eagles. Approximately 437 young were produced from 284 active nests during fiscal year 2005-2006. The number of young produced continues to increase, while the average young per active nest and average young per successful nest has remained relatively constant for the past five years. Impacts from Hurricane Katrina in southeast Louisiana and Hurricane Rita in southwest Louisiana were minimal on nesting bald eagles. Increasing nesting pairs and stabilized production data indicate a healthy bald eagle population.

Fifteen brown pelican nesting colonies were active and produced young during fiscal year 2005-2006. Eleven colonies were active during fiscal year 2004-2005. Several new colonies were identified this year after Hurricanes Katrina and Rita caused bird displacement and habitat degradation of established colonies. The storms severely impacted productivity and caused catastrophic damage to brown pelican nesting colonies east of the Mississippi River and reduced land mass and degraded vegetative habitat west of the Mississippi River. Amy Sallenger, a U.S. Geological Survey (USGS) oceanographer, reported on the Chandeleur Islands in a March 14, 2006 Associated Press article that "USGS surveys before Katrina showed that islands rose up to 18 feet above sea level. After the storm, 90 percent of land disappeared and no place had an elevation above 6 feet." High spring tides in May 2006 and Tropical Storm Alberto in June 2006 caused nest flooding and reduced productivity east of the Mississippi River. Approximately 17,516 fledglings were produced; compared to 25,289 the previous year. The loss of barrier islands, nesting colonies, and the erosion and degradation of nesting islands in coastal Louisiana by tropical storms and hurricanes could have long term negative impacts on Louisiana's brown pelican population.

Recreational Use
Recreational use at Rockefeller Refuge was severely impacted due to the conditions left following Hurricane Rita. The entire parish was closed to all residents for nearly one month following the storm. Directions were issued from administrators to prioritize cleanup and recovery efforts with a major emphasis on repairing boat launches to resume recreational activities. East End Boat Launch experienced significant erosion of soil around the structure and fill material was added before reopening for public use. The road leading to the East End Locks boat launch experienced erosion as well and fill material was added to allow safe passage of vehicles. Shortly after the parish evacuation order was lifted, both launches were safe for use. Recreational use resumed on the refuge, but at significantly reduced numbers.

Estuarine Fisheries Program
Rockefeller Refuge staff abilities to manage estuarine organism populations have been severely limited due to the destruction caused by Hurricane Rita. This situation will likely continue until repairs to critical levees and water control structures are completed and functioning properly. Though the primary goal of the division is habitat management/restoration, personnel are able to strategically allow ingress and egress of organisms into the Superior Canal complex and several other management units when habitat integrity will not be compromised.

In January 2006, Rockefeller Refuge staff resumed sampling in connection with the long-term program to identity and document effects of structural mash management on marine organisms.

Due to the devastation resulting from Hurricane Rita, Rockefeller Refuge staff was unable to produce Florida-strain largemouth bass fingerlings for fiscal year 2005-2006. However, efforts to clean out ponds and repair equipment have been successful. Production is scheduled to resume for fiscal year 2006-2007.

Technical Assistance/Outreach/Education
Refuge personnel continued its outreach program. A booth was manned at the Cameron Parish Career Day in Grand Lake. Personnel hosted several events to educate elementary, high school and college classes in wildlife and wetlands sciences.

Despite the catastrophic damage resulting from Hurricane Rita, Rockefeller Refuge again hosted the annual 4-H Marsh Maneuvers Camp. This month long camp is designed to educate high school students statewide in the importance of coastal marsh erosion, restoration, conservation and ecology.

Research and Publications
Cooperative studies conducted at Rockefeller Refuge concerning wildlife and wetlands ecology during fiscal year 2005-2006 include:

- Effects of earthen terraces on submerged aquatic vegetation, fisheries, and waterbird utilization (LSU)
- Evaluating Latitudinal Origin of Wintering Rails in Southwest Louisiana (LSU)

FURBEARER MANAGEMENT

Monitoring Fur Harvest

The 2005-2006 furbearer harvest was monitored by compiling distribution and total harvest data. Each year fur buyers and dealers are required to submit reports providing information on pelts purchased by species and parish of harvest. Annual audits of all fur dealers provide a record of total pelts by species shipped from Louisiana. River otter and bobcat possession tags provide data on timing and location of all bobcat and otter harvested in the state. These tags are necessary to insure that Louisiana otter and bobcat are tagged with federal export tags (a federal requirement for out-of-country shipment).

Records indicate a total of 1,509 trapping licenses were sold during the 2005-2006 trapping season. Of these, 1,476 were adult residential licenses, five were adult non-residential trapping licenses and 28 were youth residential licenses. These figures show a slight decrease in trapping licenses sold last season when compared to the previous season (1,597).

A total of 194,000 animals harvested (all species) was down 127,124 from the previous season's total of 321,124. The total value of the 2005-2006 fur harvest to the state's trappers was estimated at $1,173,614.92. This was down $605,020.22 from the previous season. This decline in total animals harvested and the value can be attributed to the impacts of both Hurricanes Katrina and Rita.

The nutria harvest (168,843) decreased by 128,692 from the previous season's total of 297,535. The average nutria pelt price paid to trappers during this past season was $1.50, the same amount paid the previous year. However, an additional $4 was paid for all nutria taken during the CNCP.

Fur and Alligator Advisory Council (FAAC)

The FAAC continued to work during fiscal year 2005-2006 towards its two major goals. The first goal of educating the public concerning the role of wildlife utilization in conservation is directly associated with the second goal of market enhancement for fur and alligator skins and products. FAAC has come to the increased realization that without education of the public to counter misleading animal rights propaganda, enhancement of markets cannot be accomplished in the long-term. The educational module paired with the educational CDs continued to be a great success. Requests for sample skins and programs have been tremendous. Staff and volunteers presented at numerous schools and libraries this fiscal year. The website carried the educational story to a much broader audience of teachers and students. The success of our education program will likely determine the future of markets.

This fiscal year FAAC continued to concentrate efforts on the U.S. alligator market. The Retailer Education Program was well received by retailers with requests for more educational programs for their sales staff. This program allows information to be distributed about the sustainable use of alligators, the "marsh to market story" and the difference between alligator and caiman leather.

FAAC also concentrated on solving problems associated with alligators and crocodilians in general through Convention on International Trade (CITES) and U.S. Fish and Wildlife Service (USFWS) programs and regulations. Progress continues to be steady.

FAAC has struggled to find new strong and stable markets for Louisiana fur. The international fur market continues to be very dynamic and many internal and external factors affecting buying trends and markets are still present. Mainland China still holds the brightest future for new and expanded markets and bought more Louisiana products this year. China is catching up with its knowledge base, and dealers are eager to learn about Louisiana furs. The FAAC attended fur shows in mainland China and Hong Kong during fiscal year 2005-2006. FAAC has followed a marketing plan of working in several countries that are gateways to China.

Research

The Fur and Marsh Management Section continued research through grants and contracts during this period. In fiscal year 2005-2006 the section administered several continuing contracts concerning vegetative damage caused by nutria and control techniques. A three-year grant was awarded in fiscal year 2002-2003 from the Habitat Section, National Marine Fisheries Service (NMFS) and National Oceanic and Atmospheric Administration (NOAA). The contractors for fiscal year 2005-2006 included LSU Coastal Studies Institute and the LSU Agriculture Center. This continuing research included studies to (1) obtain a better understanding of vegetative damage and why some damaged areas recover and other areas remain damaged or even convert to open water, and (2) select plant species and techniques to be used for vegetative restoration of wetlands damaged by nutria. This research concluded in December 2006.

The department conducted a Bobcat, Fox and Coyote Hunter Survey by taking a random sample of Louisiana big game license hunters from the 2004-2005 season. There is little information as to the numbers of bobcats within the state of Louisiana and so harvest data are needed to best manage the season and monitor trends through time.

The department continued fisheries research coupled with the impacts of beneficial dredge disposal on the habitat with LSU on the Atchafalaya Delta WMA. Floating Marsh Restoration research continued with LSU on selected freshwater marsh locations along the coast.

This section also monitors marsh conditions on the coastal WMAs and refuges. Marsh conditions are surveyed both on the

ground and through aerial surveys. These surveys are indicators of general marsh health, abundance of aquatic vegetation for waterfowl, abundance of furbearers and many other important components of these ecosystems.

Fur and Marsh Management personnel also collect data on wading birds and shorebirds that nest and feed on these areas and alligator nest densities, and participate in intensive coast wide waterfowl surveys.

Coastwide Nutria Control Program (CNCP)
The CNCP is funded by the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA). The objective is to decrease the damage to coastal vegetation that is caused by nutria by increasing the incentive for harvest. During the 2005-2006 season, a total of 168,843 nutria tails, worth $675,372 in incentive payments, were collected from 216 participants. Eighty participants (37 percent) turned in less than 200 tails, 53 participants (25 percent) turned in between 200 and 499 tails, 29 participants (13 percent) turned in between 500 and 799 tails and 54 participants (25 percent) turned in 800 or more tails.

Total number of nutria harvested by method of take 2005-2006

Trapped	Taken with Rifle	Taken with Shotgun
65,104 (39 percent)	81,105 (48 percent)	22,634 (13 percent)

There were 20 parishes represented in the program with harvests ranging from 58 to 57,756 nutria per parish. Approximately 79 percent of the harvest came from the south-central portion of Louisiana.

February was the most active month for harvesting nutria (61,543 tails) while November (5,726 tails) was the least active month (see CNCP 2005 Report, CWPPRA Project LA-03b).

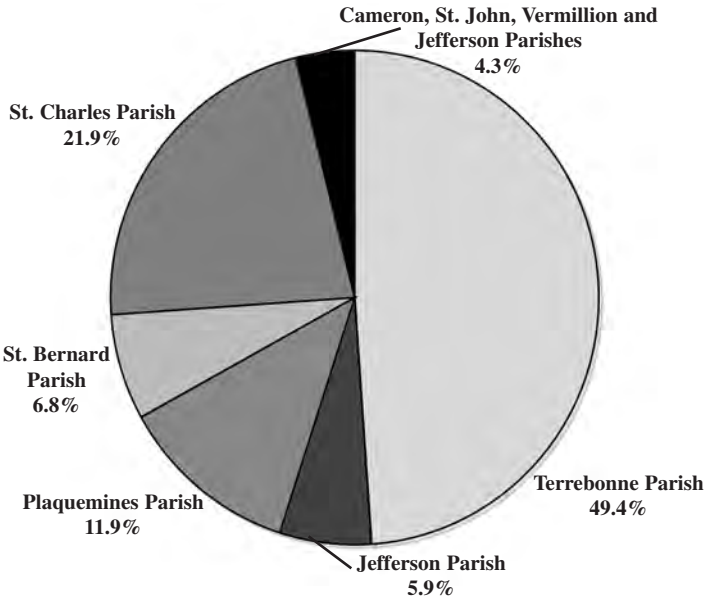
Vegetative Damage Caused By Nutria
As a monitoring requirement of the Coastwide Nutria Control Program, a coast-wide aerial survey was conducted in the spring of 2006 covering the coastal parishes of Louisiana. The total number of sites visited in 2006 was 74, of which five were new sites while 69 were previously classified as damaged in the 2005 survey. All five of the new sites were identified as nutria damage.

Two sites that had converted to open water in 2005 and 34 sites that had recovered in 2005 were not re-visited during the 2006 survey.
Of the 74 sites visited in 2006,
52 were related to nutria damage:
- 31 were identified as having visible nutria herbivory impacts.
- 12 were identified as recovered nutria damage.
- 9 were nutria damage sites that had been converted to open water.

22 were related to muskrat damage:
- 16 were identified as having muskrat damage.
- 5 were identified as recovered muskrat damage.
- 1 was a muskrat damage site that had converted to open water.

With 12 of the 52 nutria sites having recovered, the 2006 survey identified 40 sites with a total of 55,755 acres impacted by nutria feeding activity along transects. This is a slight increase from the 53,475 acres impacted by nutria in 2005. However, this increase is largely due to the addition of nine sites containing, 9,572 acres being converted to open water. All of these nine sites were located in Plaquemines and St. Bernard Parishes where Hurricane Katrina caused the most severe damage.

Percentage of Damaged Acres By Parish
(14,868 total acres)



It is interesting to note that Terrebonne Parish, Lafourche Parish and St. Charles Parish had a decrease in the number of damaged sites from 2005, indicating a level of recovery.

Also, for the first time, nutria vegetation damage was observed within Jefferson Davis Parish during the 2006 survey, with one site and 88 acres of damage.

MARSH MANAGEMENT

Division staff continued work on several Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) projects and other restoration projects during this period. Staff worked with parish, state and federal government coordinating these projects through planning, meetings, site visits, permitting and project reviews.

Department staff continued work on the Morganza to Gulf Hurricane Protection Levee, especially the reaches impacting the coastal refuges and WMAs. Staff worked with NOAA/NMFS on the installation of a "real time" water level and salinity gauge at the Atchafalaya Delta WMA Headquarters. Staff worked with Summit Energy on a topographic survey of Marsh Island Refuge.

Staff also worked on several CWPPRA projects involving coastal wildlife management areas. Staff worked with Louisiana Department of Natural Resources (LDNR) on the CWPPRA Small Dredge Project. This LDNR-sponsored project in the area of Sawdust Bend on Pass-a-Loutre WMA was initiated in June 2004 with construction of the containment dikes. The project was interrupted due to impacts from Hurricane Ivan in the fall of

2004. The project was resumed in the summer of 2005 and interrupted in late summer by Hurricane Katrina. This project was abandoned and never completed.

Division staff attended meetings concerning design, modeling and permitting for Castille Pass, Atchafalaya Delta WMA, Deer Island, East Marsh Island Marsh Creation and Nourishment, East Island, Raccoon Island Breakwaters and Whiskey Island West Flank, which are CWPPRA projects. These projects continued with design, permit application, field trips and approval process. Construction of Phase "A," eight additional rock breakwaters, on the Raccoon Island CWPPRA Project began in February 2006. Planning and permit review continued for Phase "B" Back-Bay Marsh Creation.

Division staff continued to work closely with the U.S. Army Corps of Engineers (USACE) on annual maintenance dredging of the Atchafalaya River through the Atchafalaya Delta WMA. Work continued on new potential dredge deposition sites on the lower Atchafalaya River. This required planning and review of specifications during the fall and monitoring of activities during the summer, which included shorebird surveys. The USACE in March 2006 initiated the dredging of the "Bay Channel Reach" of the Atchafalaya River and the work was completed in May of 2006. The Bar Reach (Eugene Island to Offshore) was initiated in May 2006 and will be completed in July 2006. The Horseshoe Reach was started in August 2006 and is expected to be completed in October of 2006. Planning is continuing on the dredging of South Pass on the Pass-a-Loutre WMA and will involve beneficial use of material to fill in the northern section of the freshwater impoundment. Staff also worked with the Corps of Engineers on new dredge disposal sites in the area north of "Sawdust Bend" on the Pass-a-Loutre WMA.

LDWF was awarded a grant from the North American Wetlands Conservation Act to construct a Water Management Unit on the Pointe-aux-Chenes WMA. The 5,000 acre unit is located in the center of the WMA and will be managed to enhance a deteriorated salt marsh that is now 60 percent open water. In 1956 it was 99 percent marsh. The area will be managed for marine organisms and waterfowl by regulating water levels and salinity to reduce turbidity, increase aquatics and improve emergent marsh diversity. A pre-bid conference was held in August 2004 and in the late fall the contact was awarded to Low Land Construction. Work began on the water management unit in February 2005. Impacts from Hurricanes Katrina and Rita resulted in damage to water control structures and breaches in the newly constructed levee on the west side of the water management unit. Repairs to the structures and breaches are underway. Ducks Unlimited is acting as the lead organization for implementation of the grant including grant application, partnering, engineering and overseeing the construction.

Staff worked with LDNR on the Coastwide Reference and Monitoring System (CRMS) in reviewing and issuing permits for the construction of monitoring sites on the coastal refuges and WMAs. Staff worked with LDNR and U.S. Geological Survey to produce a new coastal vegetative type map survey.

Staff also assisted other division personnel with seismic activity monitoring and planning and monitoring of drilling rig movement and mitigation on Atchafalaya Delta WMA. Staff and other division personnel worked with seismic activity monitoring on the Marsh Island Refuge.

COASTAL STEWARDSHIP OPERATIONS

On August 29, 2005, Hurricane Katrina made landfall on the southeast Louisiana coastline and, as a result, perpetually impacted coastal Louisiana. Unfortunately, several coastal wildlife management areas (WMAs) experienced moderate to severe damage to both their facilities and habitats as a result of Katrina. The Pass-a-Loutre WMA sustained the most extensive marsh and structural damage. In addition, the Pointe-aux-Chenes WMA sustained moderate damage. Fortunately, however, the southwestern and south-central WMAs and refuges sustained no damage.

Subsequent to Katrina (approximately four weeks later), Hurricane Rita hit the southwest coastline on September 24, 2005. As a result, the State Wildlife Refuge sustained severe structural damage to the headquarters facility. The Marsh Island Refuge and the Pointe-aux-Chenes WMA sustained moderate damage to their facilities as well. Further, severe habitat damage resulted from Hurricane Rita at several WMAs and refuges administered by the Coastal Operations Section.

Following the storms, many Coastal Operations staff members assisted with the relief/recovery efforts in Orleans, St. Bernard, Iberia, St. Mary and Vermilion Parishes. While multiple employees assisted with search and rescue, others assisted with purchasing and transporting supplies to aid in the relief effort. Several of Coastal Operations' airboats, skiffs and automobiles were used to assist with the effort.

As a result of the storms, Coastal Operations staff dedicated extensive resources to document damage and return the coastal WMA/refuge system to a stable state. Coastal staff worked closely with FEMA and other state entities to initiate the process of removing debris and repairing the coastal facilities.

The 2005 teal season harvest success on the coastal WMAs was 1.6 teal harvested for every hunter effort. This season's harvest success was identical to the 2003 season and similar to the 2004 season (1.7 teal per hunter effort). Unfortunately, hunter participation/harvest surveys were not conducted at the Pass-a-Loutre WMA due to damage from Hurricane Katrina. In addition, hunter interviews during the 2005-2006 regular waterfowl season indicated that the average harvest-success on the coastal WMAs remained the same as last season (2.1 ducks per hunter effort). Overall, harvest success (i.e., kill per effort) has decreased approximately 25 percent since the 2001-2002 season. In conjunction with waterfowl hunter participation/harvest surveys, Coastal Operations staff initiated a three-year monitoring project to collect waterfowl gizzards to identify and document what birds are consuming post-hurricanes as compared to years prior to these storms.

Coastal Operations staff re-initiated mottled duck banding in fiscal year 2005-2006 as part of the department's survival study being conducted by Rockefeller Refuge staff. Banding was conducted at Pass-a-Loutre and Pointe-aux-Chenes WMAs and Marsh Island Refuge. Due to Hurricanes Katrina and Rita and staffing cutbacks, only 400 ducks were banded in 2005.

Revised harvest agreements between the department and alligator hunters/fur trappers of the coastal WMAs and St. Tammany Refuge were created for the 2005-2006 season. Coastal WMA/refuge trappers were successful in harvesting 234 alligators from Atchafalaya Delta WMA, five from Pass-a-Loutre WMA, 280 from Pointe-aux-Chenes WMA, 505 from Salvador/Timken WMAs and 10 from St. Tammany Refuge. No alligators were harvested from Lake Boeuf WMA for the 2005-2006 season.

Deer browse surveys post Katrina and Rita, showed that deer browse was significantly reduced. The reason for the lower browse observations is an indicator of fewer deer on the property. The reduction of deer numbers is a result of a combination of three factors: death caused by the storms; deer pushed away from the property by high storm surges; and lower quality habitat (stressed vegetation from high winds and high salinity waters resulting in poor quality browse).

Coastal Operations staff attended automated external defibrillator (AED) training to learn how to use AED devises. Via the Rural Grant Program (a grant from the Louisiana Department of Health and Hospitals, Office of Public Health and Bureau of Emergency Medical Services), Rockefeller Refuge staff obtained AED units for Atchafalaya Delta WMA, Pass-a-Loutre WMA and Marsh Island Refuge.

Atchafalaya Delta Wildlife Management Area

Fortunately, Atchafalaya Delta WMA sustained minimal structural damage as a result of Hurricane Rita. However, considerable vegetation damage resulted from the inundation of saline waters into the freshwater environment. A majority of the submerged aquatic vegetation and some of the emergent vegetation were "burned" and/or uprooted as a result of the storm surge. According to a continuous data recorder deployed during the storm, the area received a seven foot tidal surge depositing near high salinity water (23 parts per thousand) into the area.

Coastal Operations staff continued to participate in the implementation and monitoring of the U.S. Army Corp of Engineers (USACE) Dredge Material Management Program to beneficially use dredge material to create wetlands within the Atchafalaya Bay. During fiscal year 2005-2006, the USACE dredge the bay channel and lower reach of the Atchafalaya River. Consequently, the USACE used the dredge material from the lower reach of the river to expand the size of T-Pat Island and the last unnamed island on the west side of the channel. In addition, dredge material from the bay channel was used to construct a 5,000-foot island on the west side of Willow Island. The island has been named "Valentour Island" after Mr. Joe Valentour, a USACE inspector that has been involved in the construction of disposal islands on the WMA for over 25 years.

Coastal Operations staff met with representatives of the USACE to discuss the installation of a Continuously Operating Reference Station (CORS) at the headquarters facility. The CORS network is a three-dimensional GPS-based network that provides horizontal and vertical positioning accuracies that approach a few centimeters. The USACE hopes to install the station during fiscal year 2006-2007 and plans to use the network for future dredging/beneficial use activities.

Unfortunately, the Denbury well that supplied natural gas to Atchafalaya Delta WMA headquarters facility ceased operation in July 2005. Since the facility utilized natural gas generators, it was without a dependable source of electricity for several months. However, in January 2006, El Paso Corp. donated and installed a 50 KW diesel generator at the headquarters facility. In addition, El Paso donated a one year supply of diesel fuel, a bulk tank to store the diesel, and logistical arrangements to transport and install the equipment. The donation, which was valued at $116,000, was instrumental in keeping the WMA headquarters functional during fiscal year 2005-2006.

Coastal Operations staff continued to provide logistical and technical support for multiple research projects that evaluated various wildlife and fishery aspects of Atchafalaya Delta WMA. Atchafalaya Delta and New Iberia staff provided logistical accommodations for Dr. Lane Foil's (LSU entomology professor) research to determine if insect vectors of the bluetongue virus are present at the WMA. Area staff also assisted with the collection of river shrimp (*Macrobrachium ohione*) and plankton samples for Dr. Ray Bauer's (UL Lafayette biology professor) research to assess the seasonal variation in the population structure and migration of this species of shrimp, which inhabits the Atchafalaya River. In addition, Dr. Bruce Thompson and Gary Peterson of the LSU Coastal Fisheries Institute continued their study of sport fishery use of marsh islands created via the beneficial use of dredge material. Departmental staff assisted this effort by providing lodging and transportation when required and assisted with the construction of eight small crevasses within the Big Island Mining Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) project area. These crevasses were constructed to improve tidal exchange and fishery habitat within spoil islands that had remaining retention levees.

In addition to supporting research, the Coastal Operations Section also assisted the National Oceanic and Atmospheric Administration (NOAA) with the construction and servicing of a replacement hydrological station at the Main Delta of the WMA. The station was constructed to replace a station that was destroyed during the demolition of the decrepit light house structure at Eugene Island. The replacement station was constructed adjacent to the bulkhead at the headquarters facility. Coastal Operations staff provided airboat support to ground truth the accuracy of aerial photography vegetation surveys, which are being conducted to monitor vegetation changes within the vicinity of the Big Island Mining and Atchafalaya Sediment Delivery CWPPRA Projects. These surveys are performed as part of the long term monitoring program for these projects.

Area and New Iberia staff assisted the LDWF Mineral and Permit Section with multiple assessments of proposed well sites on the WMA. The assessments were conducted to identify potential impacts of the oil and/or gas exploration to wetlands and hydrology in the vicinity of the sites.

Permits for all available mooring locations were issued for the 2005-2006 hunting seasons. A total of 70 houseboat-mooring permits were issued at the three mooring locations at the Main and Wax Lake Outlet Deltas.

Based on self-clearing permit and mandatory deer inspection data, 703 archery hunter efforts were expended in the harvest of

108 deer (60 percent bucks and 40 percent does), yielding a kill per effort of one deer per 6.5 efforts. This is a 44 percent increase in harvest from the 2004-2005 archery season. This increase in harvest is likely due to greater compliance from hunters due to improved harvest reporting requirements.

During the month of October 2005, one youth lottery deer hunt was held at the Big Island on the Main Delta. A total of 15 youths participated in the hunts and a total of 11 deer (six bucks and five does) were harvested. The first youth hunt weekend was cancelled due to the cleanup/repair effort associated with Hurricane Rita. In anticipation of the hunt, area staff planted food plots, widened and bush-hogged right-of-ways, and prepared the youth box stands to improve hunting conditions for the participants.

The 2005 teal season harvest success at the Atchafalaya Delta WMA was 1.5 birds per hunter effort. This is a slight decrease (10 percent) in kill per effort from the 2004 teal season. In addition, waterfowl hunter/harvest surveys revealed that harvest success for the regular waterfowl season was 1.9 birds per effort. This is a 19 percent decrease from the 2004-2005 season.

New Iberia and area staff conducted periodic shorebird surveys at the WMA as part of the U.S. Fish and Wildlife Service (USFWS) Lower Mississippi Valley Shorebird Monitoring Program and the U.S. Geological Survey (USGS) 2006 International Piping, Snowy and Wilson's Plover Winter Census. Many species of shorebirds were observed during the surveys including piping, semi-palmated and black-bellied plovers.

Two hundred and thirty four (234) alligators having an average length of 7.5 feet were harvested from the area during the 2005 alligator season. The trappers received approximately $35.00 per foot for the sale of the alligators. LDWF received $24,644.20 for the 40 percent share of the revenue from the harvest.

According to user surveys, approximately 15,150 recreational users visited the WMA during fiscal year 2005-2006.

Biloxi Wildlife Management Area
These areas received extensive marsh damage due to the storms. Most of the submerged aquatics were removed and marsh loss was observed.

The waterfowl seasons on these areas were fair to poor.

All boundary signs, mooring signs and hazard markers were lost after the storms.

Isle Dernieres Barrier Island Refuge
A post-Rita aerial inspection of the islands revealed that both shoreline and bayside erosion resulted from the two storms. A significant amount of the land build by the Raccoon Island Breakwater Demonstration Project was temporarily lost and/or redeposited on or near the island as a result of Katrina and Rita.

Lake Boeuf Wildlife Management Area
Hurricanes Katrina and Rita toppled many mature oak, cypress and tupelo trees across the WMA. The trees that crossed access roads, waterways, spoil banks and the ridge were cleared. The youth hunting stands were maintained, but due to manpower constraints the youth hunts were cancelled.

According to self-clearing permits only one attempt was made to harvest deer this year and it was unsuccessful.

Due to the effects of Hurricane Katrina, the Lake Boeuf WMA trapper, Mark Bladsacker, was unable to attempt an alligator harvest for the 2005 alligator season.

Marsh Island Refuge
Marsh Island Refuge sustained moderate damage to structural components (siding, roofs, doors, windows, flooring, etc.) and equipment at the headquarters facility as a result of Hurricane Rita. Additionally, some marsh loss occurred and various wildlife (deer, muskrats, alligators, etc.) and fish perished. Habitat impact surveys revealed that the eastern section of the island, which was deteriorated as a result of Hurricane Lili and muskrat/geese herbivory, suffered further damage as a result of tidal scour. A significant portion of the herbaceous/upland habitat (chenier ridges, spoil banks, etc.) was adversely impacted and extensive shoreline erosion occurred. An aerial photo analysis revealed that approximately 35 acres of shoreline was lost along the eastern boundary of the Marsh Island Hydrologic Restoration Project area as a direct result of Rita.

In addition, the Big Impoundment levee and other water level management infrastructure were damaged as a result of Rita. Unfortunately, repairs to the Big Impoundment levee were recently completed (June 2005) just before the storm via FEMA funds from Hurricane Lili. Due to damages associated with Rita, minimal active water level management was conducted at the island during the fiscal year 2005-2006. Departmental staff and FEMA representatives coordinated the repair of the Big Dam (fixed crest weir) following Rita. The walkway, which was demolished during the storm, was rebuilt by Petron, Inc. at a cost of $49,400.00. As a result the weir was reopened for public use in June 2006.

The first phase of the Summit Energy/Petroleum Geo Services (PGS) 3-D seismic survey was completed during fiscal year 2005-2006. According to Bill Gilmore, Summit Energy Q.C. representative, the survey was conducted at a record pace; it was the first large scale 3-D survey to be conducted in less than 90 days. With the aid of Tom Hargis, environmental monitor for the Russell Sage Foundation, and Coastal Environments Inc., monitor for the survey company, LDWF staff carefully monitored the seismic effort to ensure that the PGS/Summit Energy survey was implemented in accordance with departmental regulations. Although the shoot was promised to be a "zero impact" survey, some marsh damage resulted from repetitive passes of airboats in frail marsh. However, the adversely affected areas will hopefully return to pre-project conditions following one to three growing seasons.

Summit Energy and PGS initiated the second phase of the 3-D seismic survey in April 2006. The goal of this phase was to encompass 131 square miles and include the eastern half of the island and portions of the Vermilion and Cote Blanch Bays. Estimated completion date for the second phase was August 2006.

In February 2006, Summit Energy completed the Marsh Island Elevation/Base Contour Project, which was conducted to provide elevation and contour data for the island. The project was a contribution from Summit as specified in the survey agreement

between the department, Summit Energy, and the Russell Sage Foundation. M.P. Mayeux Surveying & Boundary Consulting, LLC was contracted by Summit to perform the elevation/contour evaluation and install four additional vertical control monuments at the island.

Coastal Estuary Services LLC (CES), a subsidiary of Shaw Coastal, continued with the implementation of the Marsh Island segment of the Coastwide Reference Monitoring System Project (CRMS). The project, which is funded by CWPPRA, was developed to assess the cumulative effects of all the coastal restoration projects by establishing a network of reference sites across Louisiana's coast. Coastal Operations staff assisted with the endeavor by providing access to the headquarters facility for the storage of equipment and supplies.

Coastal Operations staff provided logistical assistance for an interagency field reconnaissance at the refuge to conduct an inspection of the East Marsh Island Marsh Creation CWPPRA Project site. The objective of the evaluation was to survey changes to the project site over the past two years. Implementation of this project is scheduled for the summer of 2008.

Controlled burning of nearly 7,360 acres of the island was conducted to increase the production of preferred food plants, especially three-cornered grasses (*Schoneplectus robustus/ olneyi*), which are critical forage for the thousands of geese that utilize the area each winter. Approximately 17,000 snow geese were observed foraging in the burned areas during the LDWF's 2005 aerial surveys.

The two shorebird/colonial water bird nesting islands in Bayou Platte were mowed and sprayed with herbicide in February 2006 in preparation for the nesting season. The removal of vegetation from the islands exposes the shell/limestone surface, which is vital for successful nesting. A variety of species were observed utilizing the island, including black-necked stilts (*Himantopus mexicanus*), black skimmers (*Rynchops niger*), gull-billed terns (*Sterna nilotica*), least terns (*Sterna antillarum*), laughing gulls (*Larus atricilla*) and killdeer (*Charadrius vociferus*).

In addition to periodic bird monitoring, New Iberia staff conducted a survey of the refuge and as part of the USGS 2006 International Piping, Snowy and Wilson's Plover Winter Census. Unfortunately, none of the target species of plovers were observed during the assessment.

Approximately 1,200 smooth cordgrass (*Spartina alternaflora*) were donated by the Louisiana Department of Agriculture and Forestry (LDAF) and planted at the Marsh Island Refuge as part of the LDAF Vegetative Planting Program to improve wildlife/wetland habitat. The smooth cordgrass plugs were planted in the vicinity of the Oyster Lake terraces and along Bird Island Bayou.

Coastal Operations staff continued to provide logistical and technical support for multiple research projects at the Marsh Island Refuge. Multiple conditional permits were issued to university researchers to study flora and fauna at the refuge. Dr. Susan Mopper (UL-Lafayette biology professor) was issued a permit to collect iris seed specimens in an effort to investigate the effects of salinity stress on plant populations and their associated ecological communities. In addition, a permit was issued to Marie Perkins (LSU graduate student of the Renewable Natural Resources Dept.) to evaluate migratory habitats of the rails that inhabit the gulf coast. Finally, Robert Danka of the United States Department of Agriculture (USDA) Honey Bee Breeding, Genetics and Physiology Laboratory was issued a permit to use a restricted area of the Marsh Island Refuge as a remote breeding honey bee laboratory. The refuge was selected for this research because of its isolation and lack of resident bees.

To improve public safety, New Iberia and area staff coordinated and assisted with the removal of 13 nuisance alligators that were frequenting three weirs (the Gordy, Belly and Big Dams) which are commonly used by the public. No commercial alligator harvest was conducted on the refuge during fiscal year 2005-2006.

According to user surveys, approximately 20,480 recreational users visited Marsh Island Refuge during fiscal year 2005-2006.

Pass-a-Loutre Wildlife Management Area

Hurricane Katrina delivered a severe blow to Pass-a-Loutre WMA. It was the second consecutive year that this area experienced a severe storm. In 2004, Hurricane Ivan impacted the area destroying approximately 3,000 acres of marsh and causing minor wind damage to the facilities. Katrina however, had a much more profound impact. It is estimated that in excess of 20,000 acres of marsh was lost in the wake of the storm. The remaining marsh has undergone a drastic habitat change.

Many of the surviving ridges were severely eroded and had nearly been reduced to marsh elevation. It is estimated that 80 percent of woody component was killed. The remaining 20 percent, which included bald cypress, green ash and toothache trees, recovered well. Roseau cane was deposited along the ridges and took root, taking over as the dominant vegetation in many areas where elderberry, night shade, baccharis, lantana and marsh elder were once dominant. There are also several areas of shallow water bodies that were once dominated by cattails and duckpotatoe that are now being dominated by Roseau cane.

Following Hurricane Katrina, the facilities at Pass-a-Loutre experienced severe damage. The boat and tractor sheds were completely destroyed, and the headquarters and shop were flooded. FEMA has visited the site and is working on the necessary paperwork to repair the facilities. The staff has made repairs to the shop and is using it as temporary quarters.

Since Hurricane Ivan in 2004, oil spills have become a chronic problem. In fiscal year 2005-2006, staff responded to 18 spills across the WMA and assisted with two on USFWS land adjacent to the WMA. One spill originated immediately after Katrina and is still releasing product. This spill is adjacent to Dennis Pass, and has been labeled as the "Mystery Spill" because a responsible party has not yet been identified.

The Environmental Protection Agency (EPA) worked with NOAA and the U.S. Coast Guard (USCG) to remove hazardous debris from the WMA. This endeavor included picking up navigation hazards and containers that were storing hazardous materials such as fuel, oil and various other chemicals.

The Gonzales Hunting club has resigned their lease on the WMA. The damage their facility sustained after the storm motivated their decision. LDWF decided not to require the owner to pull the remnants off the area. There are pilings, boards and debris left at the site.

The decision was made to reduce staffing from four personnel on the WMA to two. This de-staffing was done to temporarily solve two manpower problems elsewhere. These positions were promised to be returned in six months, but that promise was never fulfilled. This situation has led to a significant inefficiency in performing duties on all southeast managed areas.

A spotlight count for deer after the storm resulted in 45 deer observed, all in apparent good condition. This matches an all time high observed in 1993. This observation is biased due to the fact that much of the vegetative cover was removed due to the storm making long distance visibility excellent. This observation was followed with a camera survey that further supported the findings of the browse surveys and spotlight counts.

Deer and rabbit seasons were closed this year due to habitat damage.

A mottled duck nesting project was also initiated. Twelve nest rolls were set out and one successful nesting was observed. This was the first recorded successful use of an artificial nesting habitat by a mottled duck in Louisiana.

Waterfowl bag checks were not collected during teal season due to the storm, but what few attempts were made were expected to be unsuccessful. During the regular waterfowl season hunter success was found to be significantly lower than the 2004-2005 season. This past season hunters averaged 1.7 ducks per hunter.

The Louisiana Department of Natural Resources (LDNR) dedicated small dredge project was reinitiated this year. This project was to create 55 acres of marsh in Sawdust Bend by removing sediments from Dennis, Johnson and Loomis Passes. The project was set back by Hurricane Ivan. Hurricane Katrina struck the project in mid construction and again sunk the dredge boat and damaged other equipment. Coastal Dredging finally abandoned the project. The project was approximately one-third complete and the containment dikes were left standing.

Due to the effects of Hurricane Katrina, three Pass-a-Loutre WMA trappers were unable to attempt an alligator harvest for the 2005 alligator season. As a result, only five alligators were harvested from the WMA by Melvin Loga. The department received $476.60 for the 40 percent share of the revenue from the harvest.

According to user surveys, approximately 22,200 recreational users visited the WMA during fiscal year 2005-2006.

Pointe-aux-Chenes Wildlife Management Area

Pointe aux Chenes WMA experienced three major set backs this year. Hurricane Katrina delivered some minor wind damage, Hurricane Rita delivered major flooding, wind and marsh damage and the area was later struck by a tornado which delivered significant damage to two structures.

Hurricane Rita had a significant impact on the marsh community. Several thousands of acres of marsh were destroyed and fragmented. Areas that were once contiguous marsh are now broken marsh/more open water. Areas that were once shallow open water are now littered with numerous small islands that are expected to erode in a couple of years and have much more open water.

All the levee structures of all the impoundments were significantly damaged and have resulted in the loss of management of all impoundments. The buildings at the headquarters experienced nine feet of flooding. The residence and the bunk house were largely spared due to being elevated on pilings, but significant damage occurred to all lower structures and contents.

This area has also suffered from labor shortages as only two of five personnel were assigned to the area. Most of the work accomplished during fiscal year 2005-2006 at this area was clean-up operations from the storm.

Discovery Pipeline completed a small mitigation project just east of Grand Bayou. The project filled in a well location canal to marsh elevation and oyster grass was planted.

The Pointe-aux-Chenes/Ducks Unlimited Impoundment was accepted by LDWF this year and incorporated an additional 5,700 acres of marsh and shallow water bottoms into more aggressive management. There are still several repair issues that are being made to the water control structures.

The breach in the Montegut Levee continues to expand due to tidal exchange. This break has led to the loss and deterioration of over 2,000 acres of marsh. This break is under the jurisdiction of LDNR as they are contemplating the future repairs of the Montegut Project.

The Morganza to the Gulf Hurricane Protection Levee section J1 is under construction. The levee parallels the west side of Hwy 665 adjacent to the Pointe aux Chenes headquarters. The J1 reach is within the boundaries of the Pointe-aux-Chenes/DU impoundment.

All the boat launches and parking lots on the area were repaired and Lafourche Parish installed new lighting on the Grand Bayou boat launch/parking lot.

The 2005 teal season had a slightly higher success rate than the 2004 season. Hunters averaged 1.5 teal per hunter attempt. The regular duck season success rate was higher than the 2004-2005 season. Hunters this year averaged 2.2 ducks per hunter compared with 1.9 ducks per hunter the prior season.

The deer season resulted in 44 hunter attempts which yielded three deer. This is a success rate of one deer per 15 hunts. Due to manpower constraints the youth lottery deer hunts were cancelled.

Two hundred and eighty (280) alligators having an average length of 6.9 feet were harvested from the area during the 2005 alligator season. The trappers received approximately $30.00 per foot for the sale of the alligators. LDWF received $7,458.66 for the 40 percent share of the revenue from the harvest.

According to user surveys, approximately 22,035 recreational users visited the WMA during fiscal year 2005-2006.

Salvador/Timken Wildlife Management Areas
The Salvador/Timken WMAs area received significant damage due to Hurricane Katrina. Because of manpower cutbacks, only a small amount of time was given to repairing buildings and structures, and further damage has occurred from rain and neglect. Overall, the marsh was minimally impacted. Observed impacts include removal of submerged aquatics and several cypress oak, and tallow trees were toppled.

Water hyacinth (*Eichhornia crassipes*) has become a problem on the WMA since the opening of the Davis Pond Diversion. The aquatic weed control section has been working on the area to aid in minimizing the problems.

The Davis Pond Diversion has only operated minimally since the late summer. Low river stages have prohibited opening the gates for fear it might flow in reverse. As a result, salinities have been noticeably higher across the WMA.

In the spring, increased flows in the Davis Pond diversion led to overtopping of the Cypress Lumber Canal Levee. This continued overtopping has degraded the levee and led to two significant cuts. The USACE has been contacted about the problem and they are studying procedures to mitigate the damages.

The Gheen's Dome 3-D Seismic Project was preformed across the WMAs this year. Close supervision and best use practices minimized damages to the marsh.
During the 2005 teal season, hunters experienced an average success rate of 2.2 teal per hunter effort. This success rate is down from the 2004 season success of 3.2. The regular waterfowl season fared better. During the 2005-2006 season hunters increased their success rate to 2.2 ducks per hunter. This is up from 1.4 the previous season.

Deer hunters expended 140 hunting attempts this year harvesting 13 deer for a success rate of one deer per 10.8 hunts.

Five hundred and five (505) alligators having an average length of 6.4 feet were harvested from the area during the 2005 alligator season. The trappers received approximately $21.81 per foot for the sale of the alligators. LDWF received $14,088.04 as its 40 percent share of the revenue from the harvest.

According to user surveys, approximately 22,300 recreational users visited the WMA during fiscal year 2005-2006.

St. Tammany Wildlife Refuge
St. Tammany Wildlife Refuge continues to be managed by the USFWS along with Big Branch Refuge.

Ten alligators having an average length of 7.0 feet were harvested from the area during the 2005 alligator season. Francis Montichek, the area trapper, received approximately $36.00 per foot for the sale of the alligators. LDWF received $1,004.44 as its 40 percent share of the revenue from the harvest.

State Wildlife Refuge
As a result of Hurricane Rita's storm surge, State Wildlife Refuge sustained extensive damage to buildings and infrastructure at the headquarters facility. The interior of the main camp was destroyed, a majority of the equipment and supplies were lost, the tool shed was washed away, the bulkhead was warped and the sides of the boat sheds were ripped from the structures. However, surveys revealed that minimal habitat damage resulted from the storm. The only noticeable land loss is minor and occurred along the bay shore of the refuge. In addition, a few water control structures sustained structural damage and some wing-wall limestone was lost.

Due to the lack of use of the facility, salinity, rainfall and recreational use, data was not collected at the refuge post-Rita. However, Coastal Operations staff anticipates an active presence at State Wildlife when the facility is returned to a functional state.

A post-Rita cleanup reconnaissance was held in April 2006 to dispose of debris and damaged equipment from the headquarters facility. Dr. Frank Jordan of Loyola University volunteered himself and eight students to assist with the endeavor. The assistance was greatly appreciated.

During fiscal year 2005-2006, two artificial reefs were slated for construction along the bay shore of the refuge in Vermilion Bay. The two reefs will be constructed via funding generated by the Coastal Conservation Association (CCA) and the Louisiana Wetland Association (LWA). The CCA reef will be constructed east of North Lake and the LWA reef will be constructed north of Prien Bayou.

Coastal Operations staff met with representatives of the National Audubon Society to discuss management objectives and authority for the Paul J. Rainey Wildlife Sanctuary and the State Wildlife Refuge. The objective of the meeting was to determine if the department would be interested in playing an active role in the management of the sanctuary.

To improve public safety, New Iberia and area staff coordinated and assisted with the removal of 18 nuisance alligators that were frequenting several of State Wildlife's weirs. No commercial alligator harvest was conducted on the refuge this year.

MINERALS MANAGEMENT

The mineral program is responsible for ensuring that mineral activities on all department properties are compatible with the environment and that wildlife management area/refuge goals and objectives are met. Mineral program staff reviewed and evaluated 31 well locations and pipeline projects, and issued/renewed 13 rights of way and surface leases during fiscal year 2005-2006. All of these projects are reviewed and coordinated with field personnel to ensure that they are compatible with department management area programs. The mineral program generated fees in excess of $15 million, which included mineral royalties, rights of way, surface leases and seismic fees. Additionally the mineral program staff obtained one Corps of Engineers permit for department management projects and issued 42 airboat/marshbuggy permits for various activities on department properties. The mineral program also coordinated with the Office of Conservation for the removal of numerous abandoned oil and gas facilities on management areas and refuges.

The mineral program continues to work closely with other programs within the department and the Coastal Management

Division within Louisiana Department of Natural Resources in the implementation of the efforts of the streamlining of Coastal Use Permits.

HABITAT

The objective of the Habitat Section is to gather and compile data on fish and wildlife resources determine the requirements for conserving the resources, and provide information and technical assistance to governmental agencies, non-governmental entities and the public. Data are also gathered on the potential impacts of human activities on the resources. These data and recommendations are provided to planners and decision-makers in advance of execution of projects in order to avoid, reduce or compensate for any environmental damage. In fiscal year 2005-2006 the Habitat Section was divided into the six following subunits.

Louisiana Natural Heritage Program

The Louisiana Natural Heritage Program (LNHP) gathers, compiles and disseminates information on unique, rare, threatened and endangered species, and unique, rare and critical habitat on the state, federal and international level.

LNHP staff reviewed 878 project proposals and wrote 820 letters in response to proposed public and private projects, assessing possible impacts on rare, threatened and endangered species and exemplary natural communities. More than 200 field days were spent by staff conducting surveys on individual species and natural communities for updating the computerized database. A total of 166 new Element Occurrence Records (EORs) and 57 updated EORs were entered into the database.

The LNHP administers federal aid grants for species of special concern through the Endangered Species Act, Section 6 program, and participates in the State Wildlife Grants Program (SWG). Section 6 projects included surveys of gopher tortoise, gulf sturgeon and snowy plover, and work on bear/human conflicts. Projects funded through SWG included breeding bird surveys, marine mammal and sea turtle stranding, Red-cockaded Woodpecker Safe Harbor, wading bird inventories and Natural Area Registry Program. The staff participated in Christmas Bird Counts, Breeding Bird Surveys and statewide Louisiana Amphibian Monitoring Program routes.

Considerable work was completed on developing the Wildlife Action Plan for the state, which will bring an assortment of groups together to develop action plans for addressing those species in decline in our state. Many meetings were held throughout the state to gather public input into the plan's development. We anticipated meeting the October 1, 2006 deadline for completing the publication, which must be approved by a national committee before additional federal funds will be appropriated for the state. Committees have been developed, and drafts of various sections have been completed.

Statewide Environmental Investigations Program

Statewide Environmental Investigations is authorized under the U.S. Fish and Wildlife Coordination Act and is partially funded by a U.S. Fish and Wildlife Service Grant. Staff is responsible for reviewing and providing comments and mitigation recommendations on all permits from and action of state and federal environmental regulatory and construction agencies. Staff members reviewed approximately 1,600 state and federal permit applications over the past year. There were 341 written comments issued on permit notices and projects containing specific mitigation recommendations. In addition to permit review, staff participates in permit site inspections and habitat evaluations, provides technical assistance to the public on wetland issues, and works with private developers and consultants involved in the regulatory process. Staff members also represent the agency on two interagency Mitigation Bank Review Teams chaired separately by the U.S. Army Corps of Engineers' Vicksburg District and New Orleans District.

LDWF works with numerous government agencies in conducting environmental investigations including U.S. Fish and Wildlife Service, National Marine Fisheries Service, Environmental Protection Agency, U.S. Army Corps of Engineers, U.S. Forest Service and the Natural Resources Conservation Service of the U.S. Department of Agriculture, Federal Highway Administration, Federal Aviation Administration, Farmers Home Administration, U.S. Coast Guard, Department of Energy, Federal Energy Regulatory Commission, Department of Defense, Housing and Urban Development, as well as Louisiana Department of Transportation and Development, Louisiana Department of Natural Resources, Louisiana Department of Environmental Quality and the Louisiana Department of Culture, Recreation and Tourism.

Statewide Environmental Investigations also assists in protecting all lessees of private oyster grounds by reviewing and approving water bottom assessments submitted by project applicants prior to the initiation of activities affecting state water bottoms under lease to private parties for oyster production. Coastal Use Permit applicants can be required, at the request of Statewide Environmental Investigations staff, to modify the activity if the proposed location unnecessarily impacts an oyster reef.

Louisiana Natural and Scenic Rivers Program

The Scenic Rivers Program is charged with the administration of the Louisiana Natural and Scenic Rivers Act. There are currently approximately 80 streams and/or stream segments in the system including an estimated 3,000 linear miles of Louisiana's streams, rivers and bayous. Drakes Creek in Vernon parish was nominated for inclusion in the Scenic River System by Senate Concurrent Resolution in the 2006 Regular Session and is currently being evaluated by the department for recommendation. If included, this will make an average addition of one stream per year to the system over the last 10 years. The act requires that the department, through the Scenic River Coordinator, administer a permitting system for activities that have potential for significant ecological impact to designated natural and scenic rivers, as well as a system of monitoring, surveillance, investigation and enforcement for the purpose of insuring compliance with the act. The Scenic Rivers Act and pursuant rules and regulations provide for the development of management plans, stream surveys and enforcement.

Several enforcement actions were initiated in fiscal year 2005-2006. These included cases of channelization/channel realignment, reservoir construction, operating on scenic rivers without permits and illegal commercial cutting of trees. One older illegal impoundment was investigated and upon identifying the

responsible party, caused to be removed restoring natural flow to Bayou Dorcheat. The Scenic Rivers Coordinator, through routine surveillance, project inspections and response to complaints, ensured compliance with permit conditions, utilization of adequate sediment control measures and appropriate clean up and restoration of permitted project sites.

The Scenic Rivers Coordinator maintained regular contact with both state and federal agencies to insure that designated scenic rivers were considered in all levels of planning and permitting. The coordinator also worked closely with city planners, police juries, mayors and local interest groups and organizations throughout the state. Ongoing efforts related the selection of the I-69 Corridor through Webster and Claiborne Parishes resulted in changing where the new interstate would cross Bayou Dorcheat to a more favorable location resulting in much reduced impacts to the bayou. Middlefork and Corney Bayous were ultimately eliminated entirely from consideration and the Dorcheat crossing was given the highest priority as a factor in the final corridor selection process.

A total of 44 permits were issued and one permit denied during fiscal year 2005-2005. Twenty emergency permits were issued for Hurricane Katrina related cleanup and the coordinator worked closely with the Natural Resources Conservation Service and the affected parishes to insure that this work was done in an environmentally sensitive yet expedient manner. This included participating in the production of a training film, meetings with other regulatory entities and those actually conducting the work.

Avian Nongame Program

The Avian Nongame Program is responsible for monitoring and providing management recommendations for nongame bird resources statewide. This is accomplished through a variety of population monitoring and surveying projects as well as technical assistance programs. The following are a summary of the projects and programs conducted by the Avian Nongame Program.

The Avian Nongame Program completed the first and initiated the second year of monitoring landbird population responses to three timber treatments at Sherburne WMA. This project involves capturing and recapturing over 2,000 landbirds and determining the age of each bird using Monitoring Avian Productivity and Survivorship Protocols (MAPS) developed by the Institute for Bird Populations.

The Avian Nongame Program completed the first and initiated the second year of red-cockaded woodpecker (RCW), a federally and state endangered species, demographic monitoring and management at Alexander State Forest WMA. This project entails monitoring 13 RCW family groups, conducting nest checks every seven to 10 days and color banding RCW nestlings. These sites are then revisited after the nestling reach the age of 30 days and the number of fledglings is determined by resighting individuals with spotting scopes. In addition, timber harvest recommendations were provided to Alexander State Forest WMA personnel to improve RCW habitat and artificial cavity inserts were installed to provide nesting and roosting cavities for the RCWs at Alexander State Forest WMA.

The Avian Nongame Program installed 20 RCW artificial cavity inserts at Big Branch Marsh National Wildlife Refuge following the landfall of Hurricane Katrina near Slidell, Louisiana. The installation of these inserts stabilized the RCW population at Big Branch Marsh and likely saved them from extirpation from the property.

The Avian Nongame Program coordinated and conducted winter piping plover surveys for the entire coast of Louisiana with partners from Louisiana State University, Barataria Terrebonne National Estuary Project (BTNEP) and U.S. Fish and Wildlife Service (USFWS).

Avian Nongame Program biologist conducted comprehensive colonial nesting waterbird surveys from May-June 2006 for the entire Louisiana coast south of Interstate 10 with partners from BTNEP, USFWS and the U.S. Geological Survey.

Additional activities conducted by the Avian Nongame Program include representing the Louisiana Department of Wildlife and Fisheries at Southeast Partner's in Flight, Nongame Technical Committee of the Mississippi Flyway Council and the Western RCW Translocation Cooperative meetings, conducting landowner site visits to promote the RCW Safe Harbor and Landowner incentive Programs, conducting ivory-billed woodpecker searches and delivering presentations to various user groups regarding nongame avian resources.

In fiscal year 2005-2006 the Avian Nongame Program also issued 80 Scientific Collecting permits for research statewide.

Mammalian Nongame Program

The Mammalian Nongame Program coordinates statewide activities for nongame mammal resources and coordinates the permitting and issuance of various related permits. Nuisance Wildlife Animal Control Operator permits are issued by the section to both qualified professionals and to private individuals who are having problems and are deemed capable of taking care of nuisance wildlife problems on their own. In fiscal year 2005-2006, there were 40 Animal Control Operators and Nuisance Animal Control permits issued. The Mammalian Nongame Program is also responsible for issuing Wildlife Rehabilitation permits and Special Purpose permits. In fiscal year 2005-2006, 44 Wildlife Rehabilitator permits were issued. Countless calls are acted upon by the Mammalian Nongame Program staff relating to injured wildlife. Such calls often require collecting and transporting injured wildlife and/or coordinating such activities with permitted wildlife rehabilitators or the LSU Veterinary School. The Mammalian Nongame Program also provides technical assistance to governmental agencies, non-governmental organizations and to the public.

The Mammalian Nongame Program staff is also heavily involved with issues related to the Louisiana black bear including issues related to human conflict with bears. In fiscal year 2005-2006, 336 nuisance black bear incidents were acted upon by department staff.

The Mammalian Nongame Program biologists represented the department in the following activities: Southeastern Association of Fish and Wildlife Agencies/The Wildlife Society (SEAFWA/TWS); Wetlands Wildlife Committee and Nongame and Threatened and Endangered Committees; the Atchafalaya Basin Nongame Committee; the Louisiana Association of Wildlife

Rehabilitators; and the Louisiana Forestry Association Recreation and Endangered Species Committee.

Geographic Information Systems Program

The Geographic Information Systems (GIS) program has become increasingly important to the mission of LDWF. The function of this program is to provide mapping and spatial data analysis assistance to all subdivisions of the department. That assistance includes creating maps and overlays, data entry and manipulation and advice to our professional staff on the application of GIS technology.

The GIS Program was involved in the following projects and/or production of the following products in fiscal year 2005-2006: Gulf Coast Joint Venture presentation; Pearl River WMA property boundary maps; Wisner WMA property boundary maps; turkey habitat region map; LNHP data conversion; 2004/2005 DOQQ acquisition; software upgrades; East End Airport map; updated WMA boundaries; Maurepas Swamp map of conservation fund; mussel map; Natural and Scenic Rivers Program web page updated; operating wells in Gulf of Mexico map; Louisiana Wildlife and Fisheries Commission maps; black bear map; black bear plotting; Elmer's Island map for legal section; Soda Lake WMA legal description; chronic wasting disease data\map; Maurepas Swamp land delineation; Minden Office expansion map; duck data; LA GAP conversion; enforcement Gulf map; St. Tammany WMA maps and coordinates of boundary; Spring Bayou WMA map; Joyce WMA map; Camp Minden map for movie logistics; enforcement bait harvest maps; Pass A Loutre Restricted property and ownership map; bait shop data conversion and vender map; infrastructure for recreational and commercial facilities data conversion; LA population difference maps; Delineated Airplane Lake; piper data conversion; salinity point data conversion to contour; Chicago Mills map; White Lake Wetlands Conservation Area legal description and access maps; created image catalog; Tensas River Conversation Corridor map; Russell Sage WMA proposed oil wells map; South Pass dredging proposals maps; deer camera sites in Pass A Loutre; St. Vincint/Lake Maurepas map; Chandeleur air photography maps; basin/fisheries map; nuisance plants maps; Mississippi River sandpits map; Gulf Coast data conversion maps; Gulf sturgeon map; Henderson Lake GPS conversion; bird rookeries map; WMA parcels by Parish; Pointe-aux-Chenes water bottom maps; and LA public/private property acreage estimates.

The GIS Program participated in the following projects and activities following Hurricane Katrina and Hurricane Rita:

- Supplied maps identifying 911 call locations to the Federal Emergency Management Agency (FEMA) and printouts of post-hurricane photography obtained by U.S. Geological Survey, National Wetlands Research Center (NWRC). NWRC began providing FEMA Search and Rescue (SAR) Incident Command Post (ICP) with geospatial analysis support to assist in the Hurricane Katrina search and rescue efforts.
- Provided geospatial data and mapping support for the following entities: FEMA, U.S. Coast Guard, Center for Disease Control, U.S. Army, Louisiana National Guard, New Orleans Fire Department and numerous state and local Urban Search and Rescue teams from around the country.

The GIS Program also represented the department on the following committees:

1. Louisiana Geographic Information Systems Council (LGISC)
2. Gulf Coast Joint Venture (GCJV) GIS Committee Member
3. Louisiana GIS Strategic Planning Subcommittee
4. Louisiana Emergency Data Committee
5. Louisiana Department of Wildlife & Fisheries GIS Council
6. Early Detection Rapid Response Committee
7. East Gulf Coastal Plain Joint Venture (EGCPJV) Technical Committee

ALLIGATOR PROGRAM

Louisiana's Alligator Management Program consists of two complex segments: research/management of the wild population and a statewide farm/ranch program. The program is funded by self-generated revenues (alligator hide tag fees, shipping label fees, other alligator related fees and alligator hide severance taxes).

Wild Alligator Program

Inventory methods, harvest regulations, tagging and reporting requirements and a complex computer program are continually upgraded to regulate and monitor a sustainable use alligator management program in Louisiana. Annual coast wide alligator nest surveys are conducted to index alligator populations and to establish harvest quotas in coastal Louisiana. In 2005, coastal nest production was an estimated 41,392 nests (*Figure 1*). Wild alligator harvest quotas are established to correlate harvest with alligator population density and distribution. Alligator harvest tags are allocated to individuals who either own or lease land that is considered alligator habitat.

Louisiana Coastal Marsh Alligator Nest Production: 1970-2005

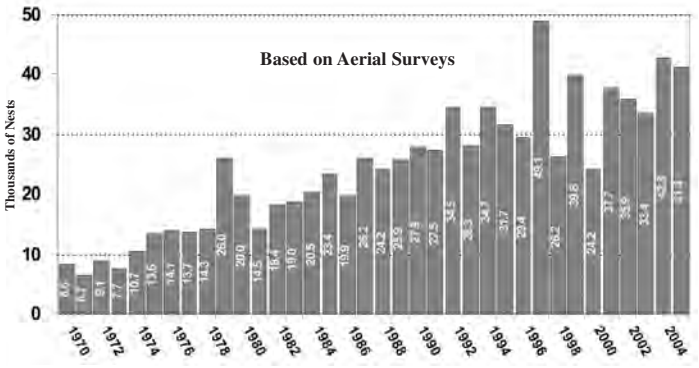


FIGURE 1

Alligator program staff, with assistance from Graphic Information Systems (GIS) specialists at U.S. Geological Survey (USGS), developed a computer based alligator tag allocation system. Digital landowner and survey information are combined with the latest aerial photography images to allow for an accurate assessment of each participant's property. The majority of the lands enrolled in the wild alligator harvest program have been entered in the system.

The annual wild alligator harvest (September 2005) produced 27,632 alligators, which averaged 7.25 feet in total length, and had an estimated value of over $10.8 million. Adult-sized alligators (those six feet and larger) comprised 88 percent of the standard harvest (*Figure 2*).

Louisiana Wild Alligators Harvested, 2005 Regular Harvest Skin Lengths

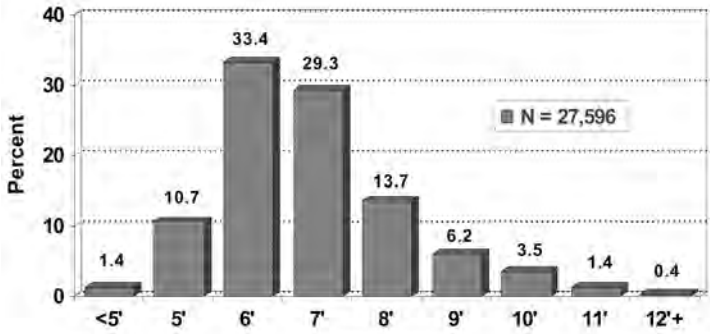


FIGURE 2 Updated 1/22/07

In September 2005, the experimental bonus tag program was continued. This program is designed to harvest four-foot to five-foot alligators which are abundant in the wild alligator population but are not targeted in the standard wild harvest program. Over 3,426 bonus alligators were harvested averaging 5.83 feet in length. Harvest numbers for both the standard and bonus harvest programs were slightly reduced due to trappers being displaced by Hurricanes Katrina and Rita.

Farm Alligator Program

At the end of the 2005 calendar year, there were 56 licensed alligator farms/ranches in Louisiana. The December 2005 statewide farm/ranch inventory was 600,777. The 2004 farm harvest (September 2004 - August 2005) was over 296,000 with a base value of $33.8 million. Average length of farm raised alligators was 3.87 feet with 96.6 percent of the harvest comprised of three-foot to four-foot alligators (*Figure 3*).

Louisiana Farm Alligators Harvested, 2004 Skin Lengths

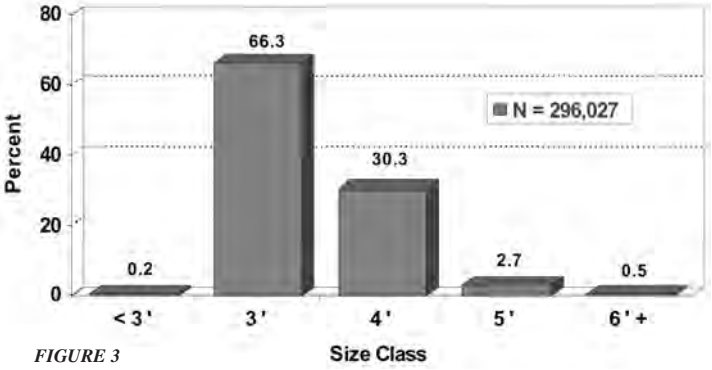


FIGURE 3

During 2005 a total of 694,694 wild alligator eggs were permitted for collection. Over 507,000 eggs were collected from which 441,298 alligators were hatched. Farmers are required to return 14 percent of the hatchlings as four-foot alligators, which compensates for the collection of eggs. The remaining animals can be sold by the farmer. The release in 2005 totaled over 35,000 alligators. All released alligators were measured, marked, tagged and sexed. Survival of farm-released alligators appears to be similar to wild alligators. Several thousand re-trapped alligators were harvested in September 2005, and data evaluation continues on survival rates of the farm released alligators.

Hurricane Impacts

Coastal Louisiana was impacted by two devastating hurricanes in 2005. Hurricane Katrina struck southeastern Louisiana on August 29, and Hurricane Rita hit southwestern Louisiana on September 24. Massive tidal storm surges inundated coastal marshes with high salinity waters across virtually the entire coast of Louisiana; which is prime alligator habitat. Some direct alligator mortality was observed; but overall long-term impact of these storms on alligator habitat remains to be seen. Direct physical damage to wetlands through scour, scrapes, erosion and rolling has been noted, and high salinities were accentuated by lower than usual winter rainfall after the storms. Storm and drought impacts in Cameron and Vermilion Parishes were severe. Alligator habitats and populations throughout these southwestern Louisiana parishes were particularly stressed during the spring and summer of 2006. Annual coastal nesting surveys were scheduled for late June/early July 2006 which provided additional data on alligator habitat alteration resulting from these hurricanes. Nest production in southwest Louisiana in 2006 is expected to be severely impacted.

Effects of these storms on the 2005 wild alligator harvest were limited, as the season dates were adjusted to allow for maximum participation and resumption of infrastructure needed to conduct a successful harvest. Some short-term effects were seen on regional commercial alligator farming operations where power was lost for several weeks, and overall farm mortality was quite limited. Blood samples were taken from wild alligators (n = 57; size range 68.6 cm to 213.4 cm total length) in February and April of 2006 to assess stress (via plasma corticosterone and electrolyte levels) due to the hurricane; although superimposed severe drought conditions developed making interpretation difficult.

A record 507,000 alligator eggs were collected in summer 2005 (prior to the hurricanes) as part of Louisiana's egg ranching program. Many of these might have been lost due to flooding of eggs or direct mortality of young hatchlings had the landowners/ranchers not participated in the egg ranching program. This provides strong support for the concept of sustained use of wildlife resources, which otherwise would have been lost to natural mortality.

Extension

LDWF biologists are actively involved in The World Conservation Union's (IUCN) Crocodile Specialist Group. This requires extensive input on a number of issues concerning international crocodilian management programs. We often host visiting delegates from overseas, including leather industry personnel, researchers and producers.

We established contracts with both the LSU and Florida Schools of Veterinary Medicine to evaluate causes and treatment of hide imperfections in farm-raised alligators. Work continues on evaluating the relationship between West Nile virus and LPSA skin lesions. Diagnostic services are available to Louisiana's alligator farmers/ranchers through contracts with the LSU School of Veterinary Medicine (LSUSVM). Department personnel work closely as a liaison between the LSUSVM staff and industry personnel to improve farm alligator health, husbandry and hide quality.

Program staff routinely communicates with various alligator industry participants including hunters, farmers, landowners and dealers. Information is provided regarding wild alligator and alligator egg harvests, harvest statistics and management recommendations. Staff routinely visits alligator farms providing recommendations on alligator husbandry and culture. Numerous requests for information are handled each year. The Alligator Program staff began production of an informative newsletter to be mailed to alligator industry participants this year which has been well received.

Research Activities

A study was initiated in June 2000, in collaboration with Dr. Val Lance of San Diego, to evaluate onset of maturity in subadult alligators. As of September 2004, over 3,500 blood samples had been collected. Unexpectedly, even the smallest sized male alligators (two feet to three feet in length) had measurable plasma testosterone levels which increased as the average size of the alligator increased. Seasonal variation in hormone levels was noted in the smaller sized alligators as well. Over time many of these alligators have moved off Rockefeller Refuge, and were taken in subsequent September alligator harvests. This has provided a unique opportunity to study dispersal of alligators of both sexes and various sizes. Dispersal due to Hurricane Rita and the drought of winter 2006 are being evaluated.

Another ongoing project our department is conducting involves using DNA technology to study paternity in alligators. We are expanding the study of paternal relationships between nests found close to each other in the marsh. Multiple paternity occurs more frequently than we originally thought, due to advances in detection ability. We hope to publish two manuscripts on these findings in the next year including the re-traps recovered in summer 2005.

Several new studies to evaluate hurricane effects on alligators were initiated in early 2005. Blood samples were taken from wild caught alligators to follow stress hormone levels and plasma electrolytes.

Tissue samples from harvested alligators, as well as from statewide embryos/yolk samples, were collected for baseline toxicology work, to ensure low levels (or non-detectable) of heavy metals in alligator muscle, liver, kidney and fat.

In spring 2003, a study was initiated with researchers at Iowa State University to determine if telomere length can be used to determine the age of alligators, without the need to sacrifice the animal to count annular growth rings in the femur. This study was expanded in 2004 and the results were presented at an international meeting. A manuscript was prepared and it has been accepted for publication in the scientific literature journal *Southeastern Naturalist*.

This year the Alligator Program staff continued collaboration with Dr. Mark Merchant at McNeese State University, who is studying the anti-microbial properties of alligator blood. Dr. Merchant is studying the immune system in alligators, which may help in the rare instances of disease in captive alligators, in terms of evaluating cause and treatment options. Several papers have been published in conjunction with Dr. Merchant. The Alligator Program assisted Dr. Merchant with wound healing studies, which may be of value to the alligator farming industry. Staff also collaborated with Dr. Merchant on studies of the febrile response and responses of juvenile alligators to LPS injections this year, to better understand disease resistance in alligators.

Samples were collected from alligators in spring 2005 for Dr. Kevin Gribbins to add to our preliminary study on the ultrastructure of the alligator testis. Samples were also collected from nesting females for Dr. Mary Higby-Schweitzer, to evaluate if/how female alligators mobilize calcium for eggshell deposition; a manuscript was published with Dr. Gribbins and a manuscript is "in press" with Dr. Higby-Schweitzer.

The Alligator Program staff collaborated with scientists from the Animal and Plant Health Inspection Service (APHIS) to test control agents for nutria, to determine if the chemicals would be safe should alligators consume any residue. Studies were conducted in the holding tanks at Rockefeller Refuge, initially during winter with a follow-up summer phase conducted in summer 2005. Results might be instrumental in limiting marsh losses due to nutria consumption of marsh vegetation.

During September 2005, a total of 505 alligators were harvested on Timken and Salvador WMAs. Data analysis continues on sex ratios, size class frequency distribution, production rates and habitat utilization.

Publications/Cooperative Research

The following scientific papers were published from approximately July 2005 through June 2006:

Elsey, R. M. 2005. Managing the 'Gator. *Louisiana Conservationist*. 58:(5) 8-12.

Elsey, R. M. 2005. Unusual offshore occurrence of an American alligator. *Southeastern Naturalist*. 4(3):533-536.

Haray, L. M., E. L. Peters, C. H. Jagoe, S. B. Castleberry, R. M. Elsey, H. A. Brant, T. C. Glenn, and I. L. Brisbin, Jr. 2005. Tissue distributions of mercury in American alligators (*Alligator mississippiensis*) from the Rockefeller Wildlife Refuge, Louisiana (Abstract). Society Environ. Toxicol. Chem. meeting, Baltimore, Maryland Nov. 2005.

Haray, L. M., C. H. Jagoe, E. L. Peters, H. A. Brant, S. B. Castleberry, R. M. Elsey, T. C. Glenn, C. S. Romanek, and I. L. Brisbin, Jr. 2005. Geographic variation in mercury concentrations and C and N stable isotope ratios in American alligators (Abstract). Society Environ. Toxicol. Chem. meeting, Baltimore, Maryland Nov. 2005.

Elsey, R. M., N. Kinler, V. Lance, and W. P. Moore, III. 2006. Effects of Hurricanes Katrina and Rita on Alligators (*Alligator mississippiensis*) in Louisiana. pp. xxx-xxx In: Crocodiles. The 18th Working Meeting of the Crocodile Specialist Group, IUCN - The World Conservation Union, Gland, Switzerland and Cambridge UK.

Gribbins, K. M., R. M. Elsey, and D. H. Gist. 2006. Cytological evaluation of germ cell development strategy within the testis of the American alligator, *Alligator mississippiensis*. Acta Zoologica. 87:59-69.

Lance, V. A., T. R. Horn, R. M. Elsey, and A. de Peyster. 2006. Chronic incidental lead ingestion in a group of captive-reared alligators (*Alligator mississippiensis*) : possible contribution to reproductive failure. Comp. Biochem. Physiol. 142:30-35.

Merchant, M., M. Hiatt, C. Kersten, P. Sanders, J. Dronette, and R. M. Elsey. 2006 (Abstract). Wound healing in the American alligator (*Alligator mississippiensis*). 18th Working Meeting of the IUCN - SSC Crocodile Specialist Group. Montelimar, France June 19-24, 2006.

Merchant, M., K. Mills, S. Williams, F. Kleckley, A. Sims, R. M. Elsey, and J. Bushnell. 2006. (Abstract). Effects of bacterial lipopolysaccharide on peripheral leukocytes in the American alligator (*Alligator mississippiensis*). 18th Working Meeting of the IUCN - SSC Crocodile Specialist Group. Montelimar, France June 19-24, 2006.

Merchant, M., K. Mills, S. Williams, F. Kleckley, A. Sims, R. M. Elsey, and J. Bushnell. 2006. Effects of bacterial lipopolysaccharide on peripheral leukocytes in the American alligator (*Alligator mississippiensis*). Veterinary Immunology and Immunopathology. 111(3-4):315-320.

Merchant, M., S. Williams, P. L. Trosclair III, K. Mills, and R. M. Elsey. 2006. (Abstract) Febrile response in the American alligator (*Alligator mississippiensis*). 18th Working Meeting of the IUCN - SSC Crocodile Specialist Group. Montelimar, France June 19-24, 2006.

Reno, P. L., W. E. Horton, Jr., R. M. Elsey, and C. O. Lovejoy. 2006. Comparative development of mammalian and metapodial growth plate formation. (Abstract). Soc. Devel. Biol. Meeting. Ann Arbor, Michigan. June 2006.

Seltzer, M. D., V. A. Lance, and R. M. Elsey. 2006. Laser ablation ICP-MS analysis of the radial distribution of lead in the femur of *Alligator mississippiensis*. Science Total Environment. 363:245-252.

Shirley, M., and R. M. Elsey. 2006. Sustainable conversation of alligators in Louisiana. (Abstract) 5th Natural Resource Extension Professionals Conference. May 14-17, 2006. Park City, Utah. pg. 62.

Several cooperative studies were undertaken or continued in fiscal year 2005-2006 with university researchers to further the understanding of alligator physiology and husbandry, including:

- Studies on seroprevalence of WNV in wild alligators.
- Studies on "PIX/LPSA" and alligator hide quality.
- Studies on glucose metabolism and leptin (an indicator of adiposity) in alligators.
- Evaluation of ultrastructure of the female alligator reproductive tract (graduate student at Southeastern Louisiana University).
- Baseline studies on lead levels and other factors in the alligator and its role in nutrition/disease of farm raised alligators (one manuscript prepared; Master's student project initiated).
- Studies on regulatory mechanisms of development of the cardiopulmonary system in alligators.
- Studies on the development of the brain, musculoskeletal system and dental system in hatchling alligators, and how oxygen levels affect development.

Office of Fisheries

The Office of Fisheries is comprised of two divisions, Marine Fisheries and Inland Fisheries.

Marine Fisheries Division

The Marine Fisheries Division is charged with management of the full range of Louisiana's estuarine and marine resources. Division responsibilities are categorized as Fisheries Management Programs and Habitat Protection Programs. In addition, the Marine Fisheries Division manages four public oyster seed reservations, three public oyster seed grounds and one public oyster tonging area, administers the oyster lease survey program and seismic program. Participation in numerous local, state, regional, national and international committees, task forces and councils provides professional expertise in the development of state and federal legislation and standards governing the wise use of renewable natural resources.

Inland Fisheries Division

The Inland Fisheries Division manages fish populations and habitats for the conservation and improvement of sport and commercial fishing primarily in freshwater areas of the state. Division responsibilities are divided into two major categories: Fisheries Management and Aquatic Habitat Management.

MARINE FISHERIES

The Marine Fisheries Division is charged with management of the full range of Louisiana's estuarine and marine resources. Division responsibilities are categorized as Fisheries Management Programs and Habitat Protection Programs. Participation in numerous local, state, regional, national and international committees, task forces and councils provides professional expertise in the development of state and federal regulation, legislation and standards governing the wise use of renewable natural resources.

THE HURRICANES OF 2005

Louisiana is second only to Alaska in terms of commercial fisheries production and home to three of the top six commercial fishing ports in the country. Louisiana's recreational harvest is second only to Florida among the states surveyed by the National Oceanic and Atmospheric Administration (NOAA) Fisheries recreational survey. These fisheries resources are not only important to the social and cultural fabric of our coastal communities, but also provide the state and national economy with an important source of jobs, income and tax revenues. Southwick Associates (2002) data collected for the "2001 National Survey of Fishing, Hunting and Wildlife-Associated Recreation" (U.S. Department of the Interior, 2002) indicates that marine commercial and recreational fishing in Louisiana supported $2.3 billion in retail sales, 36,700 jobs, $598 million in salaries and wages and generated $146 million in federal income tax revenue.

The impact of the storms of 2005 has been multifaceted and unprecedented. The impact included the direct loss of resource, loss of ability to produce income from the available resource, loss of physical assets necessary to capitalize on available resource, impact to habitats and diminished capacity to effectively manage fisheries resources. The entire coast of Louisiana was impacted by one or more of the storms of 2005 with southeastern and southwestern Louisiana being particularly hard hit.

Division biologists have documented significant negative direct impacts to oysters. Samples taken on the state's public oyster reefs in September, October and November of 2005, indicated that combined seed and sack oyster mortality totaled 64 percent. Marine Fisheries Division staff worked with NOAA Fisheries to re-program $1.2 million from an existing federal grant (Louisiana Oyster Resource Improvement Grant #NA05NMF4540035) for oyster resources previously impacted by Hurricane Ivan in September 2004. By reprogramming Hurricane Ivan funds, the division was able to utilize licensed commercial oyster harvesters in St. Bernard and Plaquemines Parishes to map the public oyster seed grounds in those parishes. The mapping information will be a valuable asset to future oyster management activities on the public oyster grounds, helping identify suitable areas for the development of new oyster reefs in the aftermath of Katrina and Rita.

In general, the storms did not directly affect fishery resources, but significantly impacted means of accessing those resources. Fish and shellfish commercial landings in Louisiana were significantly decreased in the post-hurricane (September-December 2005) timeframe when compared to the same period the previous year. Hardest hit in the short term were the oyster and menhaden fisheries. The menhaden fishery is highly integrated and almost all of its assets are located at a few sites on the coast. It experienced very severe losses. The oyster fishery suffered from both loss of available resource and precautionary health closures resulting from the storms.

Comprehensive values for vessel losses across the state are not currently available, however vessel participation was significantly reduced in the post hurricane timeframe when compared to the same period from the previous year. Currently 27 percent of marine facilities still remain closed, 55 percent are now fully operational and 6 percent still are not accessible by automobile. The central coast received the least storm damage and has recovered more quickly. The eastern side of the state has experienced slow recovery with some parishes only having one to three sites that are operational. The western side of the state is faring a little better with nearly half of the recreational sites per parish being operational, however, the commercial sites are recovering more slowly than the recreational sites. The commercial sites in Cameron Parish in southwestern Louisiana were hit very hard and have shown slow recovery with only two of 19 sites being operational. The availability of basic services, e.g., fuel and ice, has severely impacted recovery.

The number of commercial fishing trips was significantly reduced during the post hurricane timeframe when compared to the same period the previous year. Many people in our coastal communities were displaced by the storm and they have not yet returned. Recreational fisheries, including charter fishing, also saw a marked decline in participation in the September-December timeframe. Preliminary data from the National Marine Fisheries Service's MRFSS show declines in the number of fishing trips of about 50 percent for this period from the same period in 2004.

Roughly one hundred square miles of Louisiana's coastal marsh was destroyed as a result of Hurricanes Katrina and Rita. As vegetation continues to recover, a more complete picture of the extent and magnitude of the damage to coastal wetland areas will emerge. Oyster mortality resulted primarily when sediment and vegetation from torn-up marsh was deposited over oyster reef areas. Fish kills from low dissolved oxygen levels are a result of area drainages that have been flooded long enough for vegetation to die, decompose and deplete waters of available oxygen. When these waters drain from flooded areas, low oxygen levels are introduced into adjoining water bodies resulting in widespread fish kills affecting numerous predator and prey species.

All Marine Fisheries Coastal Study Area (CSA) facilities sustained infrastructure damage from the storms. Two of the coastal facilities (CSA 1 and CSA 2) were completely destroyed. The New Orleans office flooded and remains unusable, while CSA 2 and the Oyster Lease Survey Section re-established operations from LDWF headquarters in Baton Rouge. Slidell (CSA 1) personnel established and continue temporary operations from the Lacombe Fish Hatchery. Grand Terre (Marine Laboratory and CSA 3) staff had partially resumed operations at the laboratory by late October 2005.

Initially there was a significant loss of efficiency and flexibility in all field sampling. Sampling programs have been reinstituted in all major bay systems with accessible stations, and coast-wide data collection platforms are back online. Shrimp, crab, finfish and oyster data, as well as information on debris and damage to fishing grounds, are available and are being used in fisheries management decisions. Extensive testing of water quality and fish tissue by state and federal agencies has confirmed that Louisiana seafood products remain safe and wholesome.

During and immediately following the storms the Marine Fisheries Division participated in and provided logistical support for search and rescue operations. Staff provided information to and worked with the Governor's Office, the Legislature, Congress, the state departments of Health & Hospitals and Environmental Quality, Louisiana Seagrant, LSU Agricultural Center, NOAA Fisheries, the Gulf States Marine Fisheries Commission, the Louisiana Recovery Authority, the Louisiana Fishing Community Recovery Coalition and others to address the needs of the coastal fishery resources, commercial and recreational fishing industries, fishing communities and fishermen.

FISHERIES MANAGEMENT PROGRAMS

Fisheries Management Programs include Shellfish Management, Mollusc Management and Finfish Management. In addition to headquarter operations, division responsibilities are conducted through seven coastal study areas and the Lyle S. St. Amant Marine Laboratory (*MAP 1*).

MAP 1. Coastal study area boundaries.

Shellfish Management

The Marine Fisheries Division continued its long-term trawl sampling program throughout coastal Louisiana. Fishery biologists collected 773 six-foot trawl and 1,379 16-foot trawl samples from both inshore and offshore waters in each of seven coastal study areas. Data from these samples were used to recommend season frameworks for both the fall and spring inshore shrimp seasons and winter territorial sea shrimp seasons. Additionally, these same data were used to recommend season extensions and special seasons, and provide recruitment indices for Gulf menhaden and blue crabs.

Shrimp

Shrimp are Louisiana's most valuable commercial fishery and Louisiana continues to lead the nation in shrimp landings. Louisiana shrimp landings in 2005 totaled approximately 66.8 million pounds (all species combined/heads-off weight) and accounted for $133.2 million in dockside sales. Due to the impacts of Hurricanes Katrina and Rita, these figures represent decreases of approximately 21 percent in landings and 5 percent in dockside value from levels reported in 2004.

Due to significant differences in patterns of shrimp recruitment, growth and immigration between geographic areas, the Louisiana coast has been divided into three Shrimp Management Zones to better manage the resource (*MAP 2*). Shrimp management recommendations are listed below by zone.

MAP 2. Louisiana Shrimp Management Zones.

Zone 1 - Mississippi-Louisiana state line to the eastern shore of South Pass of the Mississippi River.
Zone 2 - Eastern shore of South Pass of the Mississippi River to the western shore of Vermilion Bay and Southwest Pass at Marsh Island.
Zone 3 - Western shore of Vermilion Bay and Southwest Pass at Marsh Island to the Louisiana-Texas state line.

<u>Shrimp Management Recommendations</u>

<u>Shrimp Management Zone I</u>

2005 - Spring Inshore Shrimp Season

- Zone I closed on July 3, 2005 except for that portion of Mississippi Sound originating at a point along the Mississippi-Louisiana state line at longitude 30 degrees 09 minutes 39.67 seconds north latitude and 89 degrees 30 minutes 00 seconds west longitude thence southeastward to the US Coast Guard navigational light off the eastern shore of Three-Mile Pass at 30 degrees 03 minutes 12 seconds north latitude and 89 degrees 21 minutes 30 seconds west longitude thence northeastward to a position which intersects the menhaden line as described in the Menhaden Rule (LAC 76:VII, 307D) north of Isle au Pitre at 30 degrees 10 minutes 00 seconds north latitude.
- That portion of Mississippi Sound as described above closed to shrimping on January 30, 2006.
- The open waters of Breton and Chandeleur Sounds were scheduled to close to shrimping on March 31, 2006 but the season was extended to April 7, 2006.

2005- Fall Inshore Shrimp Season

- Opened August 15, 2005
- Closed December 20, 2005 except for that portion of Zone 1 extending north of the south shore of the Mississippi River Gulf Outlet (MRGO), including Lake Pontchartrain and Lake Borgne which closed to shrimping on January 30, 2006

2006 - Spring Inshore Shrimp Season

- Opened on May 15, 2006 except for the open waters of Breton and Chandeleur Sounds, which opened for shrimping on May 8, 2006.
- Closed July 5, 2006 except for the open waters of Breton and Chandeleur Sounds and that portion of Mississippi Sound originating at a point along the Mississippi-Louisiana state line at longitude 30 degrees 09 minutes 39.67 seconds north latitude and 89 degrees 30 minutes 00 seconds west longitude thence southeastward to the US Coast Guard navigational light off the eastern shore of Three-Mile Pass at 30 degrees 03 minutes 12 seconds north latitude and 89 degrees 21 minutes 30 seconds west longitude thence northeastward to a position which intersects the menhaden line as described in the Menhaden Rule (LAC 76:VII, 307D) north of Isle au Pitre at 30 degrees 10 minutes 00 seconds north latitude.
- The remaining portion of Zone 1 closed December 19, 2006 except for the open waters of Breton and Chandeleur Sounds which are scheduled to close to shrimping on March 31, 2007.

<u>*Shrimp Management Zone II*</u>

Offshore territorial waters south of the inside/outside shrimp line from the eastern shore of Freshwater Bayou Canal at 92 degrees 18 minutes 33 seconds west longitude to the eastern shore of the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel red buoy line were closed to shrimping on January 9, 2006.

Additional offshore territorial waters south of the inside/outside shrimp line from the eastern shore of the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel red buoy line to the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at 29 degrees 03 minutes 10 seconds north latitude and 90 degrees 50 minutes 27 seconds west longitude were closed to shrimping on January 30, 2006.

Offshore territorial waters south of the inside/outside shrimp line and east of the Atchafalaya River Ship Channel at Eugene Island as delineated by the river channel red buoy line to the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at 29 degrees 03 minutes 10 seconds north latitude and 90 degrees 50 minutes 27 seconds west longitude reopened to shrimping April 10, 2006.

Offshore territorial waters south of the inside/outside shrimp line and west of the Atchafalaya River Ship Channel at Eugene Island as delineated by the river channel buoy line to the western shore of Freshwater Bayou Canal at 92 degrees 18 minutes 33 seconds west longitude reopened to shrimping on May 4, 2006.

2005 - Spring Inshore Shrimp Season

- Opened on May 16, 2005
- Closed on June 27, 2005

2005 - Fall Inshore Shrimp Season

- Opened on August 1, 2005 in that portion of Zone II from the eastern shore of South Pass of the Mississippi River to the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel red buoy line.
- Opened on August 15, 2005 in the remainder of Zone II.
- Closed on December 21, 2005.

2006 - Spring Inshore Shrimp Season

- Opened May 4, 2006 (Special April 26 LWFC Meeting)
- Closed June 19, 2006

<u>*Shrimp Management Zone III*</u>

2005 - Spring Inshore Shrimp Season

- Opened on June 2, 2005.
- Closed on July 3, 2005 except for that portion of the Calcasieu Ship Channel originating at Channel Marker 68 southward to a point originating along the inside/outside shrimp line at Calcasieu Pass and including East Pass from its origin at the Calcasieu Ship Channel to the south end of Calcasieu Lake and West Pass from its origin at the Calcasieu Ship Channel to the south end of West Cove.
- Remainder of Zone III closed on July 6, 2004.

2005 - Fall Inshore Shrimp Season

- Opened on August 15, 2005
- Closed on December 20, 2005

2006 - Spring Inshore Shrimp Season

- Opened on May 22, 2006
- Closed on July 17, 2006 except for that portion of the Calcasieu Ship Channel originating at a line between Channel Markers 85 and 86 southward to a point originating along the inside/outside shrimp line at Calcasieu Pass as described in LA R.S.56:495(A) and including East Pass from its origin at the Calcasieu Ship Channel to the south end of Calcasieu Lake and West Pass from its origin at the Calcasieu Ship Channel to the south end of West Cove.
- Remainder of Zone III closed on July 26, 2006

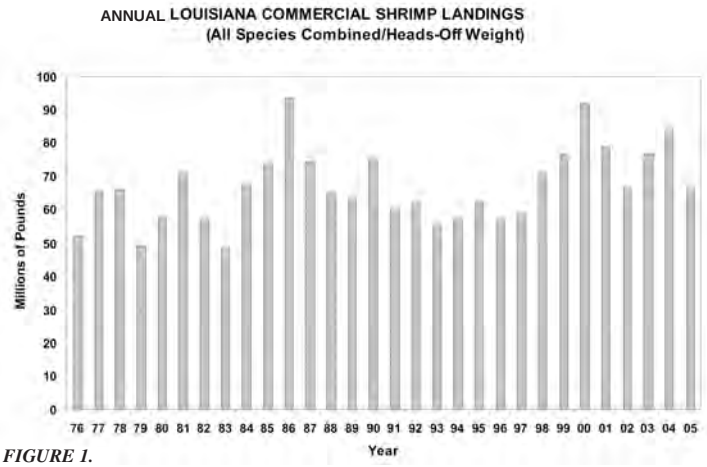


FIGURE 1.

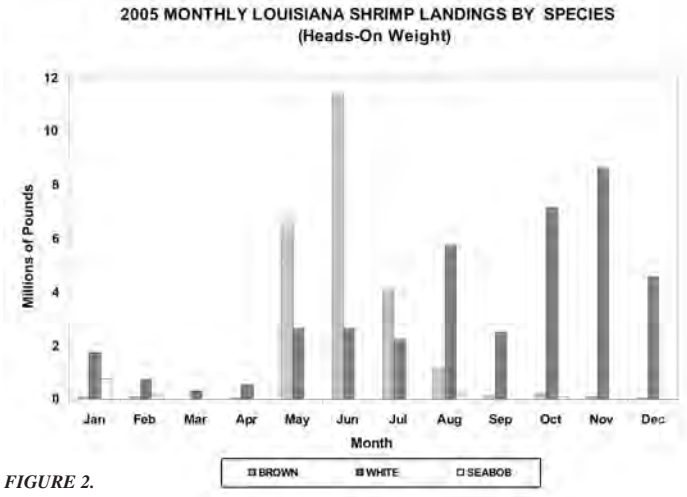


FIGURE 2.

Commercial shrimp landings since 1976 have ranged from a high of 93.7 million pounds reported in 1986 to 49.4 million pounds landed in 1983 (*FIGURE 1*). Brown shrimp landings in 2005 and 2006 were greatest during May followed by June and July while white shrimp production peaked in November 2006 at 13.3 million pounds. Seabob landings were highest during late fall and early winter (*FIGURE 2*).

Federal Aid Projects

The Marine Fisheries Division has continued the administration of an $8.68 million federal grant (Louisiana Shrimp Fisheries Disaster Assistance Grant - NOAA/DOC Award No. NA03NMF4520310). The grant activities, which include providing economic assistance to commercial shrimp fishers who have a demonstrated record of compliance with turtle excluder and bycatch reduction device regulations, incentives to commercial shrimp fishers to ensure widespread and proper use of turtle excluder and bycatch reduction devices in the fishery and personal assistance to commercial shrimp fishers, have been completed. Activities related to the promotion and marketing of wild caught Louisiana shrimp and the initiation of a quality certification and marketing program in conjunction with the Southern Shrimp Alliance continue.

The Marine Fisheries Division has also continued the administration of a $144,128 federal grant (Interjurisdictional Assessment and Management of Louisiana Coastal Fisheries - NOAA/DOC Award No. NA03NMF4070125). The objective of the Interjurisdictional Fisheries Project was to maintain a coast-wide monitoring program for parameters relevant to important fisheries resources, including both population dynamics and associated hydrological and environmental parameters, and to use information gathered to make rational management decisions. Technical biological and hydrological data gathered from the monitoring program were utilized in establishing seasonal frameworks within the shrimp and oyster fisheries, predicting annual gulf menhaden (*Brevoortia patronus*) abundance and providing data for the management of groundfishes and blue crabs (*Callinectes sapidus*). These data have provided estimates of size, density and growth of juvenile penaeid shrimp on the nursery grounds and staging areas, movement of sub-adult shrimp from the nursery grounds to staging areas and provided abilities to correlate juvenile shrimp response and subsequent production to hydrologic conditions. Data collected from the monitoring program were crucial in establishing opening and closing dates for shrimp seasons within Louisiana inside and outside territorial waters during fiscal year 2005-2006. Hydrological and biological data collected on oyster recruitment (spat set) and oyster density and availability estimates were used in formulating management recommendations regarding the oyster season on the public oyster seed grounds and seed reservations. Harvest estimates were determined from boarding report surveys of boats fishing the public seed grounds and seed reservations. These data were compared with annual stock availabilities and previous production estimates calculated during the fiscal year.

Crabs

Louisiana commercial blue crab landings for 2005 totaled approximately 37.9 million pounds and had a dockside value of approximately $38 million. Blue crab landings represent a 15 percent decrease from 2004 landings of approximately 44.4 million pounds (*FIGURE 3*). A major issue in the fishery is the low prices associated with increased foreign imports of crabmeat.

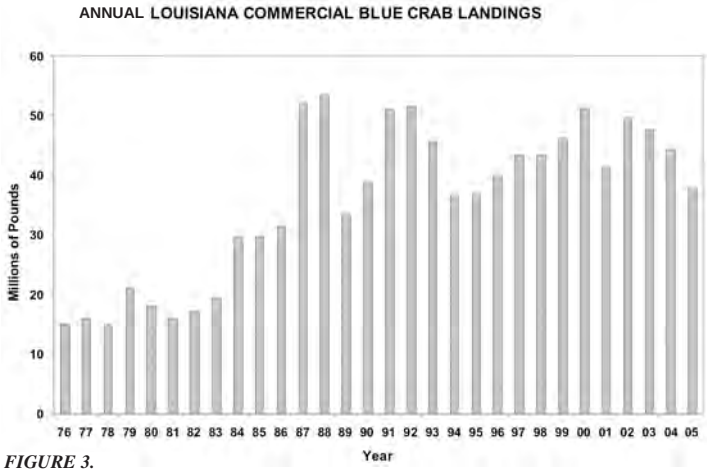


FIGURE 3.

Stone crab landings for 2005 were 649 pounds valued at $1,777 dockside. Stone crab landings decreased approximately 62 percent from the 2004 landings of 1,683 pounds. The stone crab fishery in Louisiana is not a directed fishery and stone crabs are primarily taken as incidental bycatch within the blue crab fishery. Variations in annual stone crab landings are primarily due to salinity levels with higher abundance associated with dry years.

The major department activity related to blue crabs in fiscal year 2005-2006 was the removal of derelict crab traps from coastal waters under the Abandoned Crab Trap Removal Program. Legislation introduced by the department in 2003 gave the Commission the authority to establish a derelict crab trap removal program (*TABLE 1*).

Disposal Site	Recreational		Commercial		LDWF		Other Agency/ University		Number of Volunteers	Total	
	Traps	Boat Days	Traps	Boat Days	Traps	Boat Days	Traps	Boat Days		Traps	Boat Days
Falgout Canal	258	4	96	2	17	1	0	0	50	421	7
Bayou Dularge	414	13	939	7	902	7	259	3	0	2514	30
Total	672	17	1035	9	919	8	259	3	50	2935	37
% Traps Collected	23%		35%		31%		9%		2%		
% Boat Effort	44%		28%		22%		8%		N/A		

TABLE 1. Results from 2005-2006 Derelict Crab Trap Removal Program.

Due to a combination of limiting factors including staffing shortages, equipment losses and other problems related to the impacts of Hurricanes Katrina and Rita, plans to conduct two trap closures and clean-ups were abandoned and a single crab trap closure and derelict crab trap clean up was conducted in 2006:

The following portion of Terrebonne Parish was closed to the use of crab traps over a nine-day period extending from 6:00 a.m. on March 4 through 6:00 a.m. March 13, 2006.

From a point originating from the intersection of the eastern shoreline of Bayou Dularge and the northern shoreline of Falgout Canal; thence westward along the northern shoreline of Falgout Canal to Lake Decade; thence westward and then southward along the northern and western shoreline of Lake Decade to the mouth of Bayou Decade; thence southwesterly along the northern shoreline of Bayou Decade to Lost Lake; thence westward along the northern shoreline of Lost Lake to the mouth of an unnamed bayou originating from Big Carencro Bayou; thence northward along the eastern shoreline of the unnamed bayou to Big Carencro Bayou; thence northward and then westward along the northern shoreline of Big Carencro Bayou to the eastern shoreline of Four League Bay; thence southwesterly to the northernmost point of land on Pointe Au Fer Island at Mosquito Pass; thence southward along the eastern shoreline of Pointe Au Fer Island to the mouth of Oyster Bayou; thence southward along the western shoreline of Oyster Bayou to a point along the inside-outside shrimp line as defined in R.S. 56:495; thence eastward along the inside-outside shrimp line to the eastern shoreline of Bayou Grand Caillou; thence northward to the first red channel marker (No. 10) in Bayou Grand Caillou; thence northward along the red channel markers in Bayou Grand Caillou to channel marker No. 40; thence due eastward to the eastern shoreline of Bayou Grand Caillou; thence northward along the eastern shoreline of Bayou Grand Caillou to the Tennessee Gas Pipeline canal; thence westward along the northern shoreline of the Tennessee Gas Pipeline canal to Bayou Dularge; thence northward along the eastern shoreline of Bayou Dularge and terminating at the intersection of Falgout Canal and Bayou Dularge.

A total of 2,935 abandoned crab traps were collected and overall documented volunteer participation included 17 recreational fishermen boat-days, 11 commercial crab fishermen boat-days, eight LDWF boat-days and three agency/university boat-days. On a percentage basis, commercial crab fishermen collected 35.3 percent of the traps, followed by LDWF personnel with 31.3 percent, recreational fishermen with 22.8 percent and agency/university personnel with 8.8 percent. Recreational fishermen provided 43.6 percent of the effort as measured by boat-days, followed by commercial crab fishermen with 28.2 percent, LDWF personnel with 20.5% percent and other agencies/universities with 7.7 percent. LDWF personnel also spent four boat days ferrying traps to dumpsters that were deposited by volunteers at temporary disposal sites.

In recognition of its efforts, the 2006 Derelict Crab Trap Program received an award from Coastal Living Magazine for "Sea and Shore Preservation."

Three years of trap closures and trap cleanups have taken place under Louisiana's derelict crab trap removal program. The number of retrieved crab traps can best evaluate the success of the program, although volunteer participation should also be considered. A total of 14,234 derelict crab traps have been removed from Louisiana over three years and volunteer effort, as measured by volunteer boat-days, was 296. The overall number of traps collected and volunteer participation was significant, verifying that a volunteer based derelict crab trap removal program could work.

There are, however, several points that should be made concerning Louisiana's crab trap removal efforts. First, despite the high number of derelict traps that have been removed only a small proportion of the derelict crab traps were removed from each closure area. Deep water traps in bayous and lakes were not collected and many shallow water traps were not retrieved because the volunteers did not cover the entire closure area.

Second, while a tremendous amount of publicity was generated and an enthusiastic endorsement was received from the general public and recreational and commercial fishermen, this enthusiasm was not reflected in direct volunteer participation, especially when trap cleanups are held in remote areas. There has been a decline in number of traps removed and volunteer participation in succeeding years. The number of traps removed and volunteer participation declined over the 2004-2006 period from 6,676 traps to 4,623 traps to 2,935 traps and from 215 boat-days to 50 boat-days to 31 boat days. Trap cleanups coordinated by the Texas Parks and Wildlife Department showed a similar trend in volunteer participation from 2002-2006.

Finally, the deep water spring cleanups where only traps with floats and lines are visible and which are dependent upon the cooperation of shrimp fishermen returning crab traps incidentally caught in their gear, were not successful. The reluctance of shrimp fishermen to retain traps for later disposal at shore based disposal sites was probably the main contributing factor. In contrast, the shallow water winter cleanups, which were dependent upon volunteers that actively targeted visible derelict traps, were more successful.

The Louisiana Crab Task Force has continued to meet and address issues that confront the industry. Legislation supported by the task force and approved during the spring 2006 legislative session included elimination of the crab shedders license and the requirement that crab shedding facilities hold a wholesale/retail seafood dealers license and report the number of soft shell crabs produced on monthly reports. The Crab Task Force also continues discussions on a limited entry program for the commercial blue crab fishery and impacts of crabmeat imports.

Special Bait Dealer Permits

A total of 52 special bait dealer permits were issued to licensed wholesale/retail seafood dealers for the sale of live bait shrimp during 2005. Due to the devastating impacts of Hurricanes Katrina and Rita on a number of bait dealer facilities and the loss of records, 18 permitted dealers were unable to submit catch reports detailing the number of trips taken and the number of animals harvested during the permit period. This report summarizes only those data collected on submitted catch reports. According to permit catch reports, a total of 1,226,124 live shrimp (*Farfantepenaeus aztecus* and *Litopenaeus setiferis*) and 134,990 Atlantic croaker (*Micropogonias undulatus*) were harvested by dealers during the permit period. Dealers reported a total of 633 trips taken during the permit period and sales of approximately 3,835 pounds of market shrimp.

Cameron Parish dealers led all dealers in the number of live shrimp harvested but were closely followed by dealers in St. Bernard Parish. Ranked in descending order, live shrimp harvests were next highest in Terrebonne, Jefferson, Plaquemines, Lafourche, St. Tammany and Orleans Parishes. The single

permitted non-resident Mississippi dealer reported harvesting 68,000 live shrimp from Louisiana waters. Dealers in St. Bernard Parish led all in the number of trips taken (168) while dealers in Jefferson Parish led all others in the number of croaker harvested (91,957) followed by Terrebonne, St. Bernard and Lafourche Parishes.

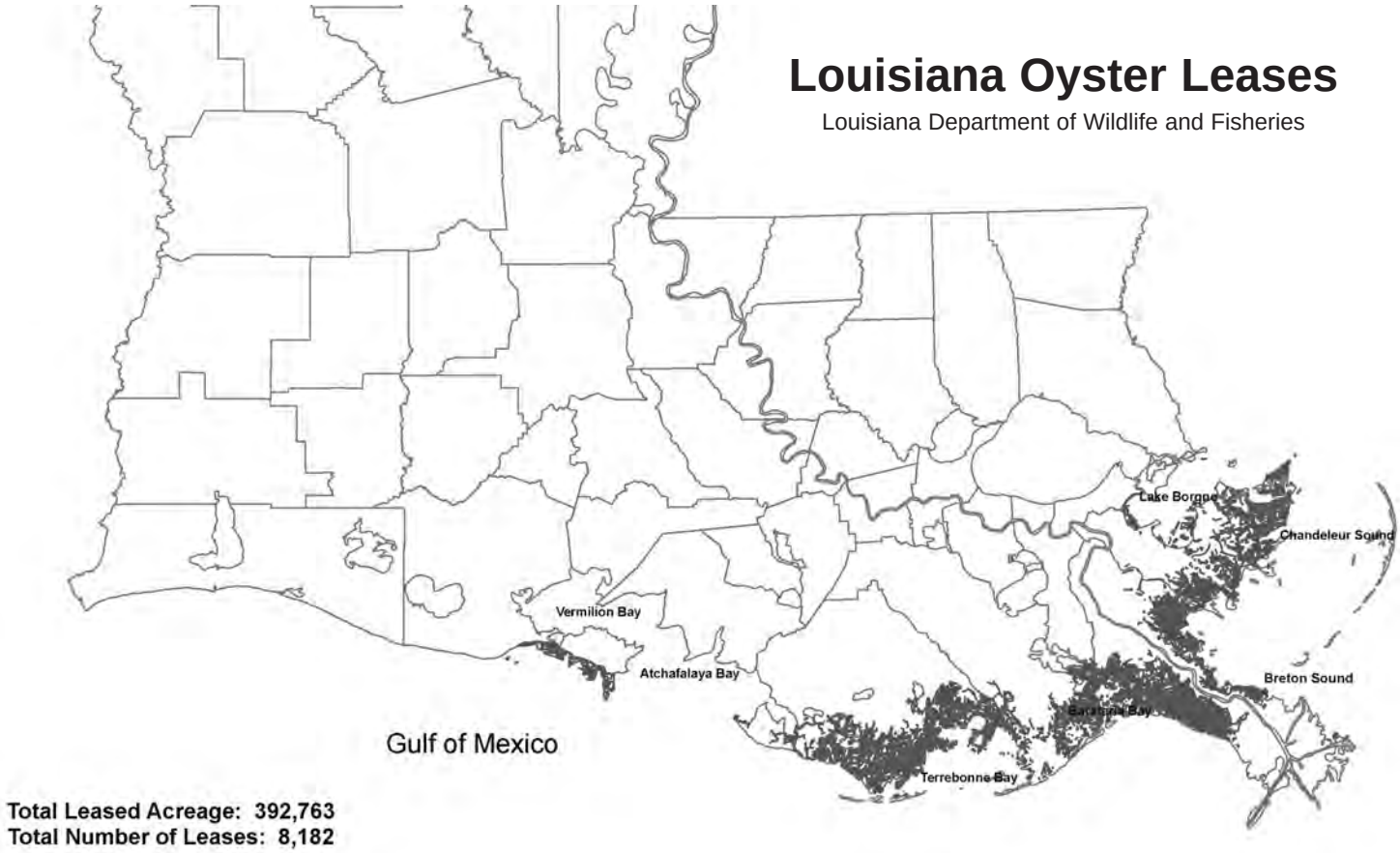
Assuming retail values of $0.25 for live shrimp and $0.30 for live croaker, the total estimated dockside value of live shrimp and croaker marketed by permitted bait dealers during the permit period is approximately $306,531 and $40,497, respectively. Sales of dead shrimp marketed by permittees contributed an additional $7,670 in retail sales generating a total estimated retail value of $354,698 for the permitted bait fishery.

Mollusc Management

The Mollusc Program manages the oyster resource on over 1.6 million acres of public oyster seed reservations, public seed grounds, public oyster areas and public tonging areas. Seed grounds are designated by the Wildlife and Fisheries Commission and include a large continuous area east of the Mississippi River, as well as areas of the Vermilion/Cote Blanche/Atchafalaya Bay system. Seed reservations, public oyster areas and tonging areas are designated by the legislature. The department manages four seed reservations, including one east of the Mississippi River (Bay Gardene), one in the Barataria Bay system (Hackberry Bay) and two in Terrebonne Parish (Sister Lake and Bay Junop).

The Calcasieu Lake Public Oyster Area previously restricted commercial harvest to tonging. However, a 2004 law change allowed for the use of hand dredges to harvest the oyster resources located in the lake beginning in the 2004-2005 oyster season. An additional law change in 2005 allowed hand dredges to be fished with the aid of a mechanical assist. Therefore, mechanical dredge harvest in Calcasieu Lake mirrors the dredge harvest in other parts of the state with the exception of dredge size. Calcasieu dredges are limited to 36 inches in width while dredges used in other parts of the state are allowed to be as wide as six feet. Sabine Lake is the only public tonging area in Louisiana, but poor water quality prohibits oyster harvest based on public health concerns. Seed grounds and reservations are managed with the goal of providing seed oysters for transplant onto private oyster leases (*MAP 3*). However, a "Sacking Only Area" exists east of the Mississippi River in portions of Lake Fortuna and Lake Machias for the exclusive harvest of sack-sized oysters. Oyster harvesters use mechanical dredges on public grounds and reservations and hand dredges in the Calcasieu Lake Public Oyster Area. Harvest is restricted to the use of hand tongs in Sabine Lake.

Six additional public grounds were designated in 2000 to be developed for oyster production. These grounds include portions of Barataria Bay, Deep Lake, Lake Felicity, Lake Chien, Lake Tambour and Lake Mechant. Initial site selection for new reefs in these areas was completed in 2002/2003 by utilizing side-scan sonar technology to analyze water bottoms. Barataria Bay, Lake Chien, Lake Felicity and Lake Mechant were chosen as locations for reef-building activities (*Figure 7*) in fiscal year 2004-2005 funded by the federal government through the Coastal Impact Assistance Program (CIAP). This project placed roughly 35,000 cubic yards of crushed concrete and limestone rock on suitable water bottoms in these areas in May-June 2004. Biological monitoring of the new reefs began immediately and continued through July 2006. Biological sampling showed the presence of



MAP 3. Louisiana Oyster Leases

FIGURE 4. Reef-building activities in Barataria Bay Public Oyster Seed Ground, 2004.

a sizeable oyster resource on each of these new reefs prior to Hurricanes Katrina and Rita, but heavy oyster mortalities at these locations following the storm were documented by departmental biologists. Biological sampling in 2006 showed a rebound, however, as newly settled spat oysters (less than one inch) had grown into seed-sized oysters (one inch to less than three inches) allowing for a short, three-day oyster harvesting season on some of these new reefs in 2006.

Additional reef building projects were the result of a federal disaster grant secured by LDWF following Hurricane Lili and Tropical Storm Isidore in September/October 2002. Reef building activities in Hackberry Bay and Sister Lake were planned and carried out in May-June 2004. Over 20,000 cubic yards of cultch material were placed on suitable water bottoms in Hackberry Bay and Sister Lake. Biological monitoring began immediately after cultch planting and continued through July 2006. These reefs also experienced heavy mortalities following the hurricanes of 2005, but showed signs of rebounding as large amounts of seed oysters were documented to be present on the reefs in 2006. A three-day harvest season was allowed on these reefs in Hackberry Bay from September 6-8, 2006.

Oysters provide an economic benefit to the state, and the ecological benefits of oyster reefs are very important as well. Oysters are biomonitors of the overall health of the ecosystem and provide forage and shelter habitat for a variety of fish and invertebrate species. Oysters also affect water quality through filter-feeding activities, affect estuarine current patterns and may provide shoreline stabilization. Because oysters are both economically and ecologically important, wise management of the public oyster resource is critically important to ensure that this valuable species continues to thrive in Louisiana's coastal areas.

Statutory provisions mandate that the department open the oyster season on Louisiana public seed grounds on the first Wednesday following Labor Day of each year and close these areas no later than April 1 of each year. However, the Louisiana Wildlife and Fisheries Commission is authorized to extend the season beyond April 1 provided sufficient stocks are available for harvest. The Secretary of the LDWF may close seasons on an emergency basis if oyster mortality occurs, or delay the season or close areas where significant spat catch has occurred with good probability of survival, or if excessive amounts of shell in seed oyster loads occur. Management practices often use rotational openings of the four Oyster Seed Reservations in alternating years.

Management of the public oyster grounds, reservations, and tonging areas (*MAP 4*) relies heavily upon data gathered through a comprehensive monitoring program. This program provides quantitative and qualitative data on oyster populations and other reef-associated animals. Approximately 190 square-meter samples are collected each July and over 150 dredge samples are collected from March-October. Square-meter data are collected using SCUBA and the data are used to measure the annual oyster stock size and for yearly season recommendations by the department. Dredge data are used to monitor the overall health of the oyster resource during the year and to assess recruitment of new age classes of oysters into the population. Field biologists also gather hydrological data on public oyster areas and develop harvest and fishing effort estimates by conducting boarding report surveys of oyster boats.

Unequaled in oyster production over recent years, Louisiana consistently produces one of the most abundant and valuable oyster resources in the nation. Averaging nearly 14 million pounds per year, Louisiana accounted for approximately 55 percent of all Gulf of Mexico oysters, and was responsible for 50.5 percent of all oysters landed in the United States in 2004 (*FIGURE 5*).

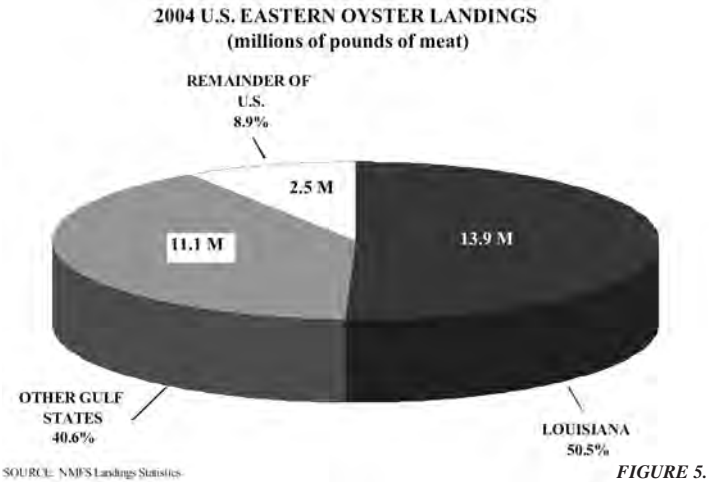


FIGURE 5.

The importance of the oyster resource to Louisiana's economy is evident as Louisiana commercial oyster landings had a dockside value of over $33.3 million in 2005.

Oyster landings in Louisiana are divided between harvest from public oyster areas and private oyster leases. Oyster season on the public grounds generally runs from September-April (*TABLE 2*), but may be extended only after approval by the Louisiana Wildlife and Fisheries Commission. Following Hurricanes Katrina and Rita in 2005, the 2005-2006 oyster season was delayed due to heavy oyster mortalities and did not open until mid-December 2006. Historically, landings from private leases have comprised 60-80 percent of annual Louisiana oyster landings, and in 2005 nearly 70 percent of all oysters harvested in Louisiana came from private leases. Although the majority of oyster landings in recent years have come from private leases, the public oyster grounds continue to significantly contribute to annual oyster landings as landings in 2005 measured 3.75 million pounds of oyster meat (*FIGURE 6*). In addition, much of the oyster production from the private leases is dependent upon small seed oysters (less than three inches) transplanted from the public grounds to the leases for grow-out purposes.

MAP 4. June 29, 2005

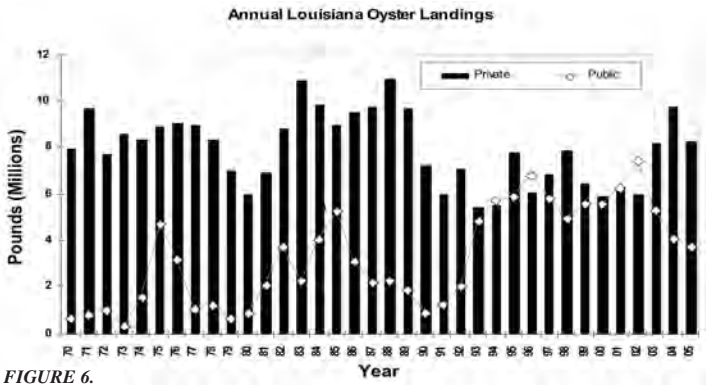


FIGURE 6.

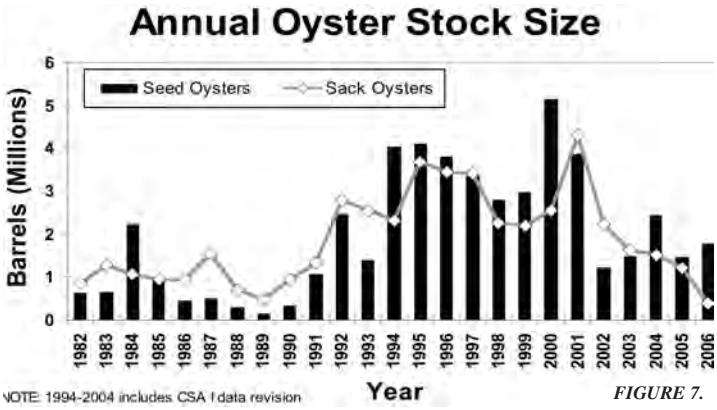


FIGURE 7.

In 2006, biological sampling estimated that over 2.1 million barrels of oysters (both seed and sack combined) were available on the public oyster grounds throughout the state. This represented an overall decrease of nearly 18 percent from 2005 levels (*FIGURE 7*) and much of this decrease can be attributed to the devastating impacts from Hurricanes Katrina and Rita in August/September 2005. These hurricanes resulted in roughly 60-70 percent mortality of oysters on public grounds east of the Mississippi River and in Barataria Bay, while public grounds in the central coast suffered approximately 35 percent mortality from the storms. Despite the heavy oyster mortalities, a strong reproductive event (called a spat set) was documented immediately following the hurricanes which resulted in a 2006 increase in available seed oyster stocks on the public grounds. These seed oysters are expected to grow to sack-sized oysters (sack, or market-sized oysters = three inches and larger) by the start of the 2007-2008 oyster season.

Oyster Leasing

The moratorium on the issuance of new oyster leases, at the request of Louisiana Department of Natural Resources (LDNR), remained in affect throughout fiscal year 2005-2006. The moratorium was requested in order to reduce the state's liability related to coastal restoration efforts. This moratorium does not affect lease renewals and 749 renewal applications were processed.

Following Hurricane Katrina, the Oyster Lease Survey Section temporarily moved its operations to LDWF headquarters in Baton Rouge and continues to maintain a website, which provides information to the public about oyster leasing in Louisiana. This website contains a searchable Geographic Information System (GIS) database of current leases, landings and harvest statistics, and recent news articles about oysters. The website has had thousands of visits since it was developed and placed on the web in March of 1998, and is available at: *http://oysterweb.dnr.state.la.us/oyster*.

TABLE 2. 2005-2006 Oyster Season Dates

Public Oyster Area	*Season Opening*	*Season Closure*
Lake Borgne Public Oyster Seed Ground and that portion of the Primary Public Oyster Seed Grounds east of the Mississippi River bordered on the north by the Mississippi-Louisiana state line and on the south by the Mississippi River Gulf Outlet (MRGO)	September 7, 2005	September 16, 2005
	December 12, 2005	April 1, 2006
That portion of the Primary Public Oyster Seed Grounds east of the Mississippi River bordered on the north by the MRGO and on the south by the Mississippi River and North Pass including the sacking only area of the public grounds which is generally Lake Fortuna and Lake Machias to a line from Mozambique Point to Point Gardner to Grace Point at the MRGO	September 7, 2005	September 16, 2005
	December 12, 2005	April 1, 2006
Bay Gardene Public Oyster Seed Reservation	September 7, 2005	September 16, 2005
	December 12, 2005	April 1, 2006
Sister Lake Public Oyster Seed Reservation	October 22, 2005	November 3, 2005
	January 3, 2006	January 31, 2006
Vermilion, East and West Cote Blanche and Atchafalaya Bay Public Oyster Seed Ground	September 7, 2005	April 1, 2006
Calcasieu Lake Public Oyster Area	October 8, 2005	April 30, 2006
Hackberry Bay Public Oyster Seed Reservation	Although a season was set for these areas by the LA Wildlife and Fisheries Commission, the Department of Health and Hospitals' closures, due to Hurricanes Katrina and Rita, kept these areas closed.	
Bay Junop Public Oyster Seed Reservation	Season Remained Closed	
Sabine Lake Public Tonging Area		
Barataria Bay Public Oyster Seed Ground		
Deep Lake Public Oyster Seed Ground		
Lake Tambour Public Oyster Seed Ground		
Lake Chien Public Oyster Seed Ground		
Lake Felicity Public Oyster Seed Ground		

Finfish Management

The primary objective of the finfish program is to make rational recommendations for the management of coastal finfish stocks based on a database of scientific information. The information in the database is collected through fishery independent and fishery dependent sampling. These programs are cooperative with the National Marine Fisheries Service (NMFS) and the Gulf States Marine Fisheries Commission (GSMFC). The fishery independent monitoring program is an ongoing collection of data by LDWF biologists in the field conducting surveys designed to sample coastal waters in an objective manner. Such surveys collect information based on geographic ranges independent of commercial or recreational fishing operations. The Marine Fisheries Division fishery dependent monitoring program collects information from fishers, processors and observers based on methods developed by NMFS for similar programs.

Fishery Independent Monitoring

A comprehensive monitoring program was developed in 1985 to protect or enhance these valuable resources by providing information regarding the status of fish stocks that occur in the coastal waters of Louisiana at some time during their life cycle. Three gear types are used coast wide to sample various year classes of estuarine dependent fish.

A bag seine is used to sample young of the year and provide information on growth and movement. A gill net is used to sample juvenile, sub-adult and adult fish and provides information on relative abundance, year class strength, movement and gonad condition. A trammel net is used to provide information on relative abundance, standing crop and movement. Gill net samples are collected semi-monthly from April-September, and monthly from October-March using a strike net technique. The gill nets are set in a crescent shape, open towards the shoreline and then circled several times by the sampling boat, driving those animals present into the net. Trammel net samples are taken monthly from October-March. Seine samples are taken monthly from January-August, and semi-monthly from September-December. Hydrological readings (conductivity, salinity and water temperature) are collected with each biological sample, as are wind direction and speed. Samples are collected at specific locations arranged in such a manner so as to cover the beach, mid-marsh and upper marsh areas of all major bay systems throughout coastal Louisiana. The catch and hydrological information is summarized for each Coastal Study Area on a monthly basis to give resource managers information on the current condition of the resource. The pertinent life history information for the important species is also used in developing analytical and predictive models. During fiscal year 2005-2006, 783 (91 percent) seine samples, 870 (96 percent) gill net samples and 241 (99 percent) trammel net samples were completed for a 94.5 percent completion rate. The only samples missed were in the period of September 2005-January 2006, in the areas most heavily impacted by the passage of Hurricane Katrina, where loss of facilities, problems with logistics and damage to vessels and gear all contributed to major problems with sampling programs.

Management recommendations based upon these observations and other information are listed below.

2005-2006 Finfish Management Actions, Impacts and Recommendations

July 2005

- Commercial large coastal shark second trimester season opened on July 1 at 12:01 am.
- Commercial king mackerel season opened on July 1 at 12:01 am.
- Commercial large coastal shark second trimester season closed on July 23 at 11:30 pm., until September 1.

August 2005

- Hurricane Katrina impacted recreational and commercial fishing in central and especially in southeastern Louisiana.

September 2005

- Hurricane Rita impacted recreational and commercial fishing across southern Louisiana, especially in southwestern Louisiana.

October 2005

- Commercial shallow-water grouper season closed on October 10 at 12:01 a.m..

- Commercial king mackerel season closed on October 21 at noon.
- Recreational red snapper season closed on October 31 at midnight.

November 2005

- Commercial king mackerel season closed on November 17 at noon.
- Commercial tilefish season closed on November 21 at 12:01 a.m.

December 2005

- Commercial red snapper season extended to December 31 at noon, to allow harvest of un-filled quota.
- Minimum size limit on vermilion snapper increased from 10 inches to 11 inches total length for both commercial and recreational harvesters, established closed season for commercial harvest from April 22 through May 31 of each year, and reduced recreational creel limit to no more than 10 vermilion snapper within the 20 fish per person aggregate bag limit for vermilion, lane, gray triggerfish, almaco jack, goldface tilefish, tilefish, blackline tilefish, anchor tilefish and blueline tilefish

January 2006

- Set 2006 red snapper recreational season.
- Set 2006 red snapper commercial season.
- Secretary provided with authority to close commercial seasons of reef fishes if quota for species group is filled in federal waters.
- Set 2006 king mackerel commercial season.
- Commercial large coastal shark first trimester season opens on January 1 at 12:01 am.

February 2006

- Present 2006 stock assessments for striped mullet, black drum, southern flounder and sheepshead.
- Commercial red snapper season opened on February 1 at noon for the first 10 days of each month.

April 2006

- Commercial and recreational shark season closed until June 30.
- Recreational red snapper season opens on April 21 at 12:01 a.m.

June 2006

- Creel limit for recreational harvest of spotted seatrout reduced from 25 fish to 15 fish per person in a designated area of southwestern Louisiana effective June 20.
- Commercial deepwater grouper season closed on June 27 at 12:01 a.m.

The Finfish Management Program interacts with other department, state, regional and national issues. The program contributes to the Gulf and Atlantic Aquatic Invasive Species Task Force that engenders cooperation on these issues for states from South Carolina to Texas and Mexico. It is also part of the Louisiana Aquatic Invasive Species Task Force. The program works with the Gulf of Mexico Fishery Management Council Stock Assessment Panel to evaluate the status of fish stocks managed by the council. It works with the Gulf States Marine Fisheries Commission (GSMFC) to develop fishery management plans and stock assessments for state-managed fisheries that have inter-jurisdictional management considerations. The program also contributes to department consideration on permitting issues that relate to finfish including coastal use permits, Liquefied Natural Gas (LNG) terminals, mariculture and artificial reefs.

Finfish Stock Assessments

Division personnel updated stock assessments for black drum, striped mullet, southern flounder and sheepshead in fiscal year 2005-2006.

Fishery Dependent Monitoring

The value of commercial landings in Louisiana exceeded $252 million (*FIGURE 8*) in 2005, a $22.7 million decrease from the 2004 landings year. The department continues to collect commercial statistics through the Trip Ticket Program that was implemented in 1999. Through this program, commercial landings data are collected on a trip basis from wholesale/retail seafood dealers, crab shedders and commercial fishermen holding fresh products licenses. There were over 227,105 commercial fishing trips reported in 2005 producing nearly 0.9 billion pounds of seafood (*TABLE 3*). A major part of the decrease in pounds landed and dockside value were a direct result of the loss of fishing vessels and infrastructure due to the impacts of Hurricanes Katrina and Rita in the fall of 2005.

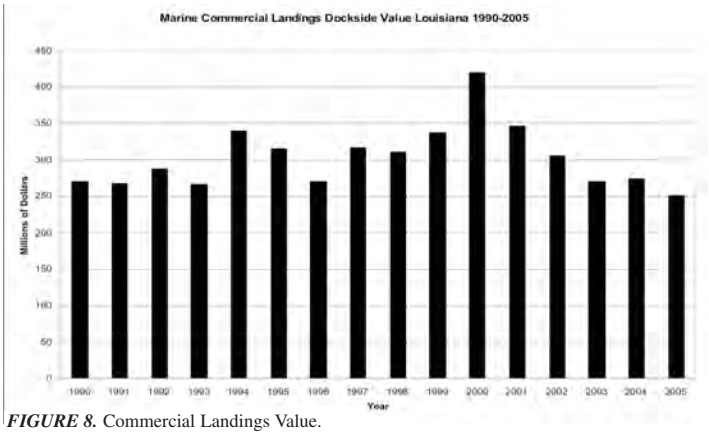


FIGURE 8. Commercial Landings Value.

Species	*Landings (lbs)*	*Value ($)*
Crab	38,100,475	$27,646,361
Freshwater Fish	11,749,757	$4,148,970
Menhaden	657,701,908	$25,776,051
Oyster	12,098,648	$33,327,369
Saltwater Fish	11,862,202	$19,591,982
Shrimp	102,469,926	$133,209,466
Wild Crawfish	15,177,220	$8,359,599

TABLE 3. 2005 Marine Commercial Landings.

Starting in May 2000 an electronic trip ticket program was developed and made available to dealers. To date, roughly 110 dealers utilize the computerized program and submit their trip ticket data to the department electronically. Trip ticket information has been used to enhance the accuracy of stock assessments conducted by state and federal fishery management agencies, and to estimate damages from Hurricanes Katrina and Rita in 2005.

Along with the collection of commercial landings data, the department also conducts trip interviews of commercial fishermen. Biologists interview commercial fishermen to gather detailed information about a specific fishing trip. The federally funded program focuses on species of greatest state and federal interest.

The department, in conjunction with other states along the Gulf of Mexico and the NMFS, began a new program in 2002 for the collection of biostatistical information. Biostatistical samples such as otoliths are collected from both the commercial and recreational fishery. Otoliths are sectioned and read by department personnel to determine a fish's age much like reading the rings of a tree. Over 7,000 otoliths were collected during fiscal year 2005-2006 in Louisiana. The program will continue to improve the information used in stock assessments and improve the accuracy of the results.

The department continues to monitor recreational fisheries through the Marine Recreational Fisheries Statistics Survey (MRFFS) in cooperation with NMFS and GSMFC. This fisheries dependent program is achieved through dockside interviews of recreational anglers to determine catch and a telephone survey to determine effort. The MRFFS survey in Louisiana reported over 3.9 million marine recreational fishing trips were taken by approximately 0.9 million anglers in 2005 (*FIGURE 9*). Recreational trips experienced a temporary decrease in the fall of 2005 due to limited access after many marinas and docks suffered catastrophic loss in Hurricanes Katrina and Rita, but have been steadily increasing since January 2006. In 2005, marine recreational anglers caught approximately 14.5 million spotted sea trout and 4.1 million red drum in Louisiana waters.

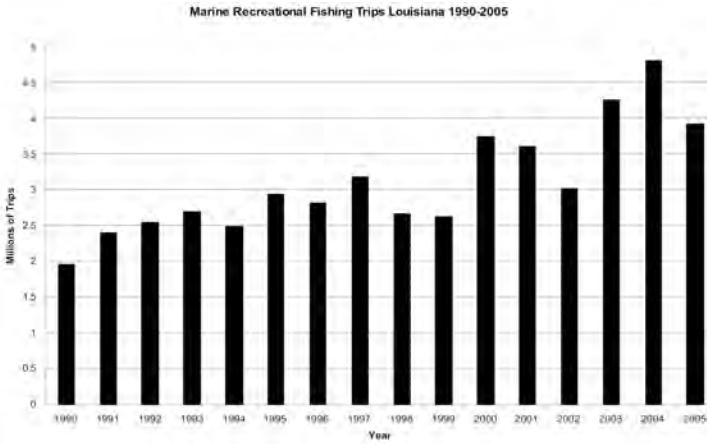


FIGURE 9. Marine Recreational Fishing Trips.

Southwick Associates (2002), using data collected for the "2001 National Survey of Fishing, Hunting and Wildlife-Associated Recreation" (U.S. Department of the Interior, 2002), estimated that Louisiana saltwater anglers (resident and non-resident) spent approximately $410 million in 2001 for fishing trip expenses, equipment and other expenses, with a total economic impact in Louisiana's economy of approximately $746 million. They also estimated that this supported approximately 7,800 jobs in the state.

Lyle S. St. Amant Marine Biological Research Laboratory

The Marine Laboratory's primary mission is to conduct the research required to manage Louisiana's marine fisheries. The laboratory is made available for the use of other department and non-department entities engaged in fisheries management, enforcement, coastal restoration and marine education, and serves as headquarters of Coastal Study Area III in the Barataria Bay estuarine system. Several LSU, ULL and Nicholls State University researchers make use of laboratory facilities. The marine laboratory also supports the monitoring of the Grand Isle Sulphur Mine Reef for the Louisiana Artificial Reef Program.

Federal Aid in Sport Fish Restoration

The Federal Aid in Sport Fish Restoration Act, commonly referred to as the Dingell Johnson Act, passed on August 9, 1950, and was modeled after the Pittman Robertson Act to create a parallel program for management, conservation and restoration of fishery resources. The Sport Fish Restoration program is funded by revenues collected from the manufacturers of fishing rods, reels, lures, flies and artificial baits, who pay an excise tax on these items to the U.S. Treasury. An amendment to the Act in 1984 (Wallop Breaux Amendment) added new provisions by extending the excise tax to previously untaxed items of sport fishing equipment.

Appropriate state agencies are the only entities eligible to receive grant funds. Each state's share is based 60 percent on its licensed anglers (fishermen) and 40 percent on its land and water area. No state receives more than 5 percent or less than 1 percent of each year's total apportionment. The program is a cost reimbursement program, where the state covers the full amount of an approved project then applies for reimbursement through Federal Aid for up to 75 percent of the project expenses. The state must provide at least 25 percent of the project costs from a non federal source. During 2005, Louisiana used the marine share of its Sport Fish Restoration Funds in support of the projects listed below.

Marine Boating and Fishing Access

This project continued development of marine boating and fishing access for recreational anglers. According to current federal regulations each state shall allocate at least 10 percent of each annual apportionment under Federal Aid in Sport Fish Restoration Act for recreational boating access facilities. All facilities constructed, acquired, developed, renovated or maintained (including those existing structures for which maintenance is provided) must be for the purpose of providing additional, improved or safer access of public waters for boating recreation as part of the state's effort for the restoration, management and public use of sport fish. It is an objective of the department to strengthen its ability to effectively meet the consumptive and non consumptive needs of the public for marine fish resources.

Stock Assessment of Louisiana's Important Marine Finfishes, F-97

High quality data for the stock assessment for various species are essential for making management decisions. This project will determine the spawning ratio of the major recreational saltwater finfish in order to comply with legislative mandates that regulatory action be taken when the Spawning Potential Ratio (SPR) falls below 30 percent. The goal is to ensure that the stocks of these finfish are not over fished. The spawning potential ratio will be determined using age, growth and fecundity. The LSU Coastal Fisheries Institute will assist with the analysis of samples. Marine Fisheries sampling crews obtain otoliths from important marine fish. Additional work is added as needed to address age, growth and reproductive biology of selected finfishes to support stock assessment efforts. This project started on July 1, 1999 and is an ongoing project. As of June 30, 2006, approximately 32 formal stock assessment reports have been completed as a result of this project.

Louisiana Marine Sport Fish Investigation, Laboratory Acquisition/Development, Southeast Louisiana, F-108
This grant will be used to construct a new marine fisheries laboratory facility on a 7.8 acre tract in Grand Isle, La. This new laboratory facility will replace the Lyle S. St. Amant Marine Biological Laboratory located on Grand Terre Island. This project started on September 1, 2001 and is scheduled to be completed by September 30, 2008.

Evaluating Sport Fish Use of Created Wetlands in the Atchafalaya Delta Project (Contracted to LSUCFI) F-107
The Atchafalaya Delta is losing coastal wetlands and the Coastal Wetlands Planning, Protection and Restoration Act provided funding to restore the wetlands. Dredge spoil from the river will be used to create new wetland habitat. Phases one and two of this project examined the suitability of this habitat for sport fish production. These data will be used in future planning efforts to optimize the creation of habitat for sport fish. Phase three will add sampling from the Wax Lake Delta to be used to compare altered and unaltered systems. This project is currently in the third phase of continuing research. Phase one started on September 1, 2001 and was completed on June 30, 2003. Phase two started on October 26, 2003 and was completed on June 30, 2006. Phase three started on July 1, 2006 and is scheduled to be completed by June 30, 2008. Through June 30, 2006 approximately 71 percent of the overall project has been completed.

Continuation of Identifying Essential Fish Habitats in Barataria Bay Project (Joint project with LSUCFI) F-106
Objectives for phases one and two of this project were to describe essential fish habitat (EFH) using sidescan sonar, split beam hydro acoustics and stable isotope techniques. It will also identify EFH in Barataria Bay and quantified its value to important sport fish species. These techniques will yield data that can be used to address the protection and conservation of habitats important to marine, estuarine and anadromous finfish. Through a partnership, Louisiana Department of Wildlife and Fisheries and Louisiana State University developed a monitoring program, established sampling protocols and conducted field sampling. The project identifies juvenile habitat use by sampling tissue and examining differences in isotopic composition. These data will be integrated together to provide marine fisheries managers with habitat use by various fish species. Phase three is titled "Can Pulsed-River Diversions Shift Ecological Baselines in Louisiana Estuarine Ecosystems?" Phase three was initiated to develop a better understanding of the relationship between wetland habitats and fisheries productivity in Louisiana and the efforts to maintain and restore both. Another objective of phase three is to develop an explicit understanding of how higher trophic levels are affected by landscape and smaller-scale changes in wetlands topography and estuarine hydrology via direct collaboration and contemporaneous sampling with wetland scientists. This project is currently in the third phase of continuing research. Phase one started on September 1, 2001 and was completed on August 30, 2003. Phase two started on November 1, 2003 and was completed on June 30, 2006. Phase three started on July 1, 2006 and is scheduled to be completed by June 30, 2009. Through June 30, 2006 approximately 63 percent of the overall project has been completed.

An Analysis of Spotted Seatrout (Cynoscion nebulosus) Feeding Habits within Louisiana Bay Systems (Joint project with the University of New Orleans) F-123
This project will determine whether food web assemblages and trophic positions of sea trout differ among three distinct habitats using carbon and nitrogen stable isotope analysis and fatty acid analysis. This project started on July 1, 2004 and is scheduled to be completed by June 30, 2007. Through June 30, 2006 approximately 66 percent of the project has been completed.

Marine Sport Fish Tagging Study (Joint project with LSUCFI) F-124
This three-year project will develop an alternative estimate of red drum escapement through a tagging study utilizing a diverse partnership among fisheries scientists and volunteer anglers. Angler education is an important component of this project. LSU is a funding and research cooperator. This project started on July 1, 2004 and is scheduled to be completed by June 30, 2008. Through June 30, 2006 approximately 50 percent of the project has been completed.

Sport Fish Utilization of Artificial Reefs vs. Open Water Habitats (Joint project with LSUCFI) F-130-DR
The purpose of this research is to gain understanding of differential habitat utilization and energetics of natural vs. manmade oyster reefs for selected fish species. The project will evaluate and document the value of limestone based inshore artificial oyster reefs as essential fish habitat for important marine sport fish species, associated forage species and benthic invertebrate colonizing species. This project started on January 1, 2005 and is scheduled to be completed by December 31, 2007. Through June 30, 2006 approximately 50 percent of the project has been completed.

Fisheries and Habitat Assessment of Bayou St. John, Restoring a Historic Urban Sport Fishery (Joint project with UNO and New Orleans City Park) F-131-R
Bayou St. John and the City Park Lagoons are located near the downtown area of New Orleans, La. This grant will assess and restore habitat, determine the quantity and quality of sport fish populations and quantify fishing pressure. Modifications in the water supply system will allow estuarine organism inflow into the entire system. Public use should increase as a result of improved fishing. Due to impacts from Hurricane Katrina, project initiation was delayed six months and did not begin until January 2, 2006. This project is scheduled to be completed by July 1, 2008. Through June 30, 2006 approximately 25 percent of the project has been completed.

The Louisiana Artificial Reef Program
The Louisiana Artificial Reef Program (LARP) was founded in 1986 through the cooperative efforts of the LSU Coastal Fisheries Institute (LSUCFI) and the LDWF. Resultant legislation called for the development of a State Artificial Reef Plan and provided for an Artificial Reef Program in Louisiana (LARP). Act 100 of the 1986 Legislature established that LDWF would operate the program with logistical support from LSUCFI. LSUCFI and LDWF produced a plan in the fall of 1986 that was accepted by the Louisiana Legislature. The plan outlined the citing, permitting and monitoring requirements of the program.

The LARP was established to use obsolete oil and gas platforms to provide habitat for Louisiana's coastal fishes. Federal law and international treaty require oil exploration companies to remove these platforms one year after production ceases. The LARP has provided an opportunity for oil companies to contribute to maintenance of fisheries habitat. Since its inception, a total of 39 petroleum and other companies have participated in the offshore program and donated the jackets of 149 oil and gas platforms, 40 Armored Personnel Carriers (APCs) and one offshore tug structure, all of which were installed at select locations as artificial reefs. In addition the reef program also developed 14 inshore reefs, primarily low profile reefs composed of shell and limestone. LDWF constructed eight reefs, and six others were constructed in association with public conservation groups. In working with one of these groups the department constructed four reefs using reef balls. These reefs have been deployed successfully in tropical and oceanic environments, but this was the first attempt to deploy in an estuarine setting. Five new obsolete oil platforms were added to the program as artificial reefs during the 2005-2006 calendar years.

In June 2004, the department deployed its first deep-water reef as part of its deep-water reef program. The structure, located in South Pass Block 89, approximately 15 miles south of the mouth of the Mississippi River, was previously owned by Marathon. The reefs are in water depths in excess of 400 ft. This water depth was chosen to minimize the impacts on the shrimp fishery. It has been reported that less than 1 percent of the shrimping activity takes place at these water depths. In addition these platforms are very difficult and expensive to remove. The partial removal preserves the hard bottom habitat and maintains fishing opportunities for its residents, the oil and gas industry saves money on decommissioning the platforms, but more importantly the fish keep their homes. Since June 2004, two additional platforms have been deployed as deepwater reefs.

As the oil and gas industry in the Gulf of Mexico recovers from the devastation of the 2005 hurricane season, they are faced with removing 165 structures and eight mobile offshore drilling units destroyed or damaged by the storms. Industry has sought alternatives in cleanup activities to reduce the cost of removal and have petitioned the LARP to accept structures at the location they were destroyed. The LARP manages a Special Artificial Reef Sites (SARS) program specifically aimed at establishing artificial reefs under unusual and/or exceptional circumstances, such as occurs during natural and man-made catastrophes. The LARP attempts to minimize negative impacts and the cost of removing these structures, while maintaining and enhancing fisheries habitat. By the end of 2006, 10 projects representing 37 platforms have been approved as SARS in the Central Gulf of Mexico.

HABITAT PROTECTION PROGRAMS

Habitat Protection Programs include the Southeast Area Monitoring and Assessment Program (SEAMAP), Hydrographic Monitoring, Monitoring Louisiana's Rainfall, Air Temperature, River Discharge, Oil Spills and Hazardous Materials, Caernarvon Freshwater Diversion Monitoring, Seismic and Coastal Wetlands Protection.

Southeast Area Monitoring and Assessment Program

The Southeast Area Monitoring and Assessment Program (SEAMAP) is a cooperative state, federal and university program for collecting, managing and disseminating fishery-independent biological and environmental data and information in the southeastern United States. Fishery-independent data are those collected by fisheries scientists, rather than fishermen. SEAMAP collects data on fish stocks that are managed jointly by the states and federal government, and conducts a variety of data collection activities including a Fall Shrimp/Groundfish Survey, Spring Plankton Survey, Reef Fish Survey, Summer Shrimp/Groundfish Survey, Fall Plankton Survey and other plankton and environmental surveys.

The department collects samples between Southwest Pass of the Mississippi River and Pointe au Fer, and out to the 120-foot depth contour off the Louisiana coast. Louisiana SEAMAP activities include summer (July), autumn (October) and winter (December) trawl surveys that also collect zooplankton and environmental resource data.

Biological samples are collected using a SEAMAP-standard 40-ft trawl to collect juvenile and adult animals. Each trawl station is sampled once during daylight hours and once at night to measure the different animal communities that are present in a daily cycle. Plankton nets are used to sample early life history stages (eggs and larvae) of marine organisms. Environmental data are collected at all stations.

The summer 2005 survey was scheduled for July 5-8, aboard the chartered vessel *Pelican*. However, the passage of Hurricane Cindy forced a rescheduling of the cruise for July 7-10. The trip was aborted on July 9 due to Hurricane Dennis. Four of seven scheduled plankton stations and six of 12 scheduled trawl stations were sampled successfully.

The fall 2005 survey was conducted October 10-13, aboard the chartered vessel *Pelican*. All 12 scheduled daytime and nighttime demersal trawl stations and seven plankton stations were sampled successfully. There were no stations found to be hypoxic during the fall 2005 cruise, and only one station (15 fathoms) sampled during the July 2005 cruise had hypoxic bottom water.

Data from all sample cruises, including real-time shrimp and red snapper data from the summer and fall cruises, respectively, were entered, verified and uploaded to the SEAMAP data management system. SEAMAP data are available by request, as are the various publications of the SEAMAP program including environmental and biological atlases of the Gulf of Mexico for each year from 1983 through the present. More information about SEAMAP is available at the Gulf States Marine Fisheries Commission website: *http://www.gsmfc.org/*.

Hydrographic Monitoring

The department began collecting constant records of salinity, water temperature and tide level in 1958. This program continued in fiscal year 2005-2006, cooperatively between LDWF and the U.S. Geological Survey (USGS). Data are collected from 15 stations located from the Pearl River to Calcasieu Pass; details are shown below (*TABLE 4*).

Field data are collected by USGS, and finished data are provided to the department. All sites collect data in near real-time (four-hour lag), and the data are transmitted via satellite from the instrument in the field to the USGS office in Baton Rouge and

TABLE 4. Data collection stations

LDWF#	USGS#	STATION NAME	CURRENT STATUS
105	0738023365	Bayou Rigolets near Slidell	Offline
112	07374526	Black Bay near Snake Island, Point-a-la-Hache,LA	Online
117	3007220891501	Mississippi Sound at Grand Pass	Offline
315	073802515	Barataria Pass East of Grand Isle	Online
317	07380251	Barataria Bay North of Grand Isle	Online
320	07380335	Little Lake near Cutoff	Online
321	07380340	Tennessee Canal near Cutoff	Online
338	073802512	Hackberry Bay NW of Grand Isle	Online
417	073813498	Caillou Bay SW of Cocodrie	Online
518	07381349	Caillou (Sister) Lake SW of Dulac	Online
622	07387040	Vermilion Bay near Cypremont Pt.	Online
623	07387050	Vermilion Bay at Bayou Fearman	Online
730	08017095	North Calcasieu Lake near Hackberry	Online
731	08017118	Calcasieu River near Cameron	Online
732	08017044	Calcasieu River at the I-10 Bridge	Online

downloaded to the department's database via the Internet. Both internal and external data requests are filled from this database. Once processed, the data are used to support fishery management by, for example, determining how much suitable area of brown shrimp nursery grounds are available each year and setting season opening dates.

With the passage of Hurricanes Katrina and Rita in the fall of 2005 this data stream was interrupted by damage to all monitoring stations in the network. While some stations were completely destroyed, some only suffered minor interruptions and were back online in days. Parts were replaced as necessary and all that had not lost the physical platforms were operational by October 2005. Two stations remained offline: 105 at the Rigolets and 117 in the Mississippi Sound.

Monitoring Louisiana's Rainfall, Air Temperature and River Discharge

The department is continuously updating the database with rainfall, air temperature and river discharge readings throughout the state. These readings are used to monitor inputs that affect the elevation of the state's coastal waters. It is also vital in supporting fishery management by, for example, determining conditions available for brown shrimp each year, resulting in the season opening dates. Field data are collected by outside agencies and are provided to the department via the Internet. Once processed, both internal and external data requests are filled from the database by LDWF biologists.

The rainfall and air temperature data are collected from nine different divisions, each having multiple stations in various locations statewide. Each of these sites is supervised by NOAA/National Weather Service and the information is compiled and published in monthly and annual reports and received at the National Climatic Data Center (NCDC). Readings are available in monthly averages for each division, as well as average minimum and maximum air temperature. Monthly preliminary data are sent to the department but is not entered until NOAA edits and publishes the final draft for each month and then ultimately for each year. LDWF biologists enter the data from monthly published reports and verifies with annual summaries for any editions.

The river discharge data are collected in real-time and are transmitted to the U.S. Army Corps of Engineers, New Orleans District. The department retrieves this information at: *http://www.mvn.usace.army.mil/eng/edhd/wcontrol/wcmain.htm.* The Mississippi and Atchafalaya are the only two river basins that the Department monitors. The Mississippi River station is located at Tarbert Landing, MS and the Atchafalaya River station is located at Simmesport, LA. These stations transmit a daily reading. LDWF biologists enter and verify the data for inclusion into the database. The data collected during the 2005 year showed rainfall and river discharge to be below the long-term average, and air temperatures to be slightly above the long-term average.

National Coastal Assessment (Coastal 2000)

The department participated in the EPA program, National Coastal Assessment (NCA). The program consisted of departmental personnel sampling 50 randomly generated sites in coastal Louisiana for water quality, fish tissue and sediment samples. The sampling period was from July 15-September 15 and the samples were divided spatially into Coastal Study Areas, with department staff conducting the sampling. Chlorophyll, total suspended solids and sediment grain size were analyzed in the department coastal ecology laboratory. Water column nutrients, sediment metals, hydrocarbon, toxicity, total organic carbon and fish tissue hydrocarbon were sent to the EPA to be analyzed in contracted labs.

In June of 2005 the original five-year program ended and a new two year grant was initiated to continue the work. However, due to delays encountered during the grant process, including adjustments to the sampling design, and in light of the logistical problems left in the wake of Hurricanes Katrina and Rita, the decision was made by the EPA to complete sampling in the summer of 2006.

With the passage of Hurricanes Katrina and Rita, EPA used the Louisiana NCA data from 2000-2004 as a baseline for pre-hurricane coastline condition, for internal circulation. Results of EPA's comparison are still pending at this time.

Oil Spills and Hazardous Materials

The department's Oil Spill Task Force continued in fiscal year 2005-2006 to develop and implement plans to protect and restore the state's wildlife, fishery and habitat resources from the adverse effects of oil spills. With other state and federal trustees,

department representatives continued to develop a pilot plan for a regional restoration planning program for Louisiana that will provide a means to efficiently restore habitat and other natural resources injured as a result or small spills.

Pre-assessment data collection for NRDA began for spills that occurred during 2005-2006.

- January 2005 Shell pipeline spill in Joseph's Bayou in South Pass.
- February 2005 Texas Petroleum pipeline spill at Delta Farms in Lafourche Parish.
- April 2005 Exxon/Mobile pipeline rupture in West Champagne Bay.
- June 2005 Amerada Hess tank overflow onto Breton Island.
- July 2005 Exxon/Mobil spill in West Bay Champagne north of Grand Isle.
- August 2005 Enervest had a well head leak in Garden Island Bay.
- Also in August 2005 Hurricane Katrina caused substantial damage to the oil infrastructure in Southern Louisiana.
- This was followed almost immediately in September 2005 by Hurricane Rita in the western portion of the State with more devastating damage to oil structures there.
- October 2005 Gold King/Shell had a mystery spill in Garden Island Bay.
- November 2005 Exxon/Mobile had a pipeline rupture in Raceland.

The department continued damage assessment and restoration planning activities.

- September and October 2004 multiple post Hurricane Ivan oil spills into the marsh along Pass-a-Loutre and in the Wildlife Management area itself.
- Damage assessment on November 2003 Exxon/Mobil pipeline spill on Mendicant Island north of Grand Isle in Barratries Bay.
- Restoration planning with Shell/Texaco on a Dec/Jan 2003 pipeline blowout in Terrebonne Bay, south of Cocadrie, LA to discuss restoration projects.
- Injury determination on a March 2003, Exxon/Mobil oil spill in Lake Washington, out of Port Sulphur, LA.
- Injury determination for the April 2002 BP/Amoco pipeline spill in Little Lake in the Barratria Basin near Galliano, LA.
- Injury determination for the May 2002 Unocal Oil pipeline spill in the East Lake Palourde Field near Morgan City.
- Continual site visits for damage assessment determinations of the December 2002 Hillcorp pipeline spill at Duck Lake in the Atchafalaya basin.
- Restoration planning began for the September 2002 Ocean Energy well blowout at North Pass of the Mississippi River near Delta National Wildlife Refuge and Pass-a-Loutre State Wildlife Management Area.
- Continual restoration planning for an April 2001 Williams Petroleum pipeline spill at Mosquito Bay near Pointe au Fer.
- Monitoring of restoration that was put in place for the November 2000 T/V Westchester tanker spill in the Mississippi River. The focus of restoration for this spill was the area on and around Pass-a-Loutre State WMA where a delta splay project was constructed to compensate for marsh and other habitat injuries. Improvements were also made to campground facilities on the WMA. Monitoring continues.
- Restoration planning activities for a June 1997 Apache Corporation pipeline spill in coastal Vermilion Parish continued in 2004.
- The final DARP and Settlement Agreement were signed for the September 1998 Equinox well blowout in Lake Grand Ecaille, Plaquemines Parish. The restoration project, a marsh creation project near the site of the blowout, was turned over to NOAA for implementation.
- The final DARP and Settlement Agreement started circulation for the Sonat well blowout in August 1997.

The department also participated in an interagency project initiated by the Louisiana Oil Spill Coordinator's Office to develop regional plans to restore natural resources injured in oil spills. In addition the department is participating with other state and federal agencies in planning restoration of hazardous materials sites. Two planning activities continue: Bayou Trepagnier in St. Charles Parish and Calcasieu River in Calcasieu Parish.

The department also evaluated and responded as needed to approximately 3,000 oil spill notifications which were received from State Police. These notifications cover a range of hazardous emissions and chemical spills as well as oil spill related incidents.

Seismic Section

The LDWF Seismic Section was created in 1939 specifically to protect oysters, fish, shrimp and other wildlife from the effects of seismic exploration. Seismic exploration uses energy waves to generate a profile of sub-surface reflective layers that help define potential oil and gas traps. The energy waves can be produced by explosives detonated below the ground (generally 100 - 150 feet deep), by air guns that emit a powerful burst of air just above the surface or by large vibrating pads placed on the surface. These projects can occur in sensitive wetlands, water bodies and uplands. Seismic agents monitor geophysical companies to protect Louisiana's fish and wildlife resources by ensuring compliance with LDWF seismic rules and regulations. During fiscal year 2005-2006, the seismic section monitored 30 projects throughout the state.

Coastal Wetlands

In fiscal year 2005-2006, the Marine Fisheries Division continued to work with state and federal agencies to develop strategies for slowing the rate of coastal wetlands loss in Louisiana. Multi-agency planning ensures that many resources are included in the plans. For example, flood protection and reducing saltwater intrusion into areas of fresh and intermediate marshes have been the focus of major civil works and restoration projects in fiscal year 2005-2006. Some of these projects are designed to reduce flooding and salt water intrusion by blocking tidal exchange. Loss of tidal exchange reduces the area of wetland nurseries available to juvenile marine organisms, thus potentially reducing the population of those species. Changes to coastal fish and wildlife resource populations can cause displacement and economic stress for communities with economies that depend upon these resources. Marine Fisheries staff worked with federal and state planners to develop strategies that ensure that new or modified designs avoid, minimize or mitigate adverse environmental impacts from large coastal projects.

Extensive fisheries resource monitoring programs continued for both the Caernarvon and Davis Pond Freshwater Diversion Projects. The Caernarvon Project has been operational for 16 years, and department personnel have monitored its effects on the fish, wildlife and vegetation populations in the basin throughout its operation. The Caernarvon structure was closed just before Hurricane Katrina, and remained closed for the remainder of 2005. Caernarvon opened in January 2006 at 2000 cfs/d, and remained open through the end of June 2006 at rates of between 2000-4000 cfs/d. The Breton Sound basin, the receiving basin for the Caernarvon structure sustained substantial damage as a result of Katrina. USGS estimates that over 100 square miles were lost in the upper part of the basin.

The Davis Pond Project came on-line in July 2002. Ongoing maintenance designed to address problems with flooding in the ponding area north of Lake Cataouatche limited the amount of freshwater diverted through the structure. The structure was opened for 16 days in July 2005, two days in August 2005 and 29 days for the remainder of 2005. Davis Pond was reopened in January 2006 at 1500 cfs/d, and operated through June at 3000 cfs/d for 160 days. Marine Fisheries personnel continued to monitor the fisheries resources in the Barataria Basin including a comprehensive study of the Davis Pond project effects on recreational fishing throughout the basin. The Marine Fisheries Division provides input into the operation of both structures.

In fiscal year 2005-2006, the Habitat Section also considered impacts that may occur in the Gulf of Mexico as a result of construction and operation of Liquefied Natural Gas regasification facilities. Impacts as they were discussed in the Environmental Impact Statements for these facilities were based on the loss of eggs and larvae in water intake structures for these facilities as well as possible benthic impacts from the discharge of cold water containing anti-fouling compounds. The magnitude of loss of eggs and larvae was based on a few samples from the SEAMAP program, and models developed by the US Coast Guard and its consultants. Since there are so few data available for use in the model, the department argued that there were not enough data to model impacts with acceptable levels of certainty. In February 2005, the Maritime Administration (MARAD) approved an application from Shell-Gulf Landing for an open loop facility about 38 miles off Cameron in the northern Gulf of Mexico. It was the third open loop facility approved. At the time of Hurricanes Katrina and Rita, there were three additional open loop facilities with license applications pending, Freeport McMoran Main Pass Energy Hub, ExxonMobil Pearl Crossing, and Conoco Phillips Beacon Port. MARAD stopped the time clock on these applications after the hurricanes until January 2006. Three of the proposed open loop projects off Louisiana were subsequently withdrawn in 2006 including one that had already been licensed. One applicant changed their application from an open loop regasification system to a closed loop system, which avoided large impacts related to water intake.

INLAND FISHERIES

The Inland Fisheries Division manages fish populations and habitats for the conservation and improvement of sport and commercial fishing primarily in the freshwater areas of the state. Fish populations are managed through surveys, fish sampling, fisheries regulations, fish stocking and the modification of fisheries habitat. In addition, the division is charged with the control of nuisance aquatic vegetation in public water bodies. This is accomplished through an aggressive aquatic plant control program that utilizes a variety of management options including herbicides, drawdowns and biological controls. The division is also coordinating the state's efforts with respect to invasive species. Act number 185 of the 2004 legislative session created the Louisiana Aquatic Invasive Species Council and Task Force within the Department of Wildlife and Fisheries. The Council and Task Force are working to implement the "State Management Plan for Aquatic Invasive Species in Louisiana." The goal of the management plan is to prevent and control the introduction of new nonindigenous species into Louisiana, to control the spread and impact of existing invasive species, and to eradicate locally established invasive species wherever possible.

FISHERIES MANAGEMENT

Lake Management

Fisheries managers estimate relative abundance, size class structure and species composition of fish population and physiochemical characteristics of the water in 90-100 lakes, rivers and streams annually. All lakes are sampled in a similar manner so that data from different waterbodies are comparable.

Electro fishing samples are taken in the spring and fall to provide a measure of abundance. Only largemouth bass are collected in the fall while largemouth bass and crappie are collected in the spring. A forage sample of all species is also collected in the fall. Standard sampling time is 900 seconds per station.

Gill net samples are taken during winter primarily to determine relative abundance and length frequencies of gizzard shad, striped bass, hybrid striped bass, commercial and rough fish species. Monofilament nets with mesh sizes from 2.5 to 4.0 inches (bar mesh) are set at dusk and gathered at sunrise. Each fish taken is identified, weighed and measured. This sampling method

provides gear selectivity, species composition and length frequency information.

Nighttime shoreline seine sampling measures reproductive success of the sunfishes including bass and bluegill. Year-class strength, species composition and prey availability are provided by this sampling effort. Samples are conducted during spring and summer and consist of one quadrant haul at each sample site using a 25-foot by 6-foot seine.

Frame nets are used to measure relative abundance and length-frequencies of crappie and other sunfish. Species composition, age and growth and length weight relationships are determined. Sampling is conducted for a minimum of 48 hours with two nets at each station.

Water quality samples are taken at all sampling stations. Water temperature, pH, dissolved oxygen concentration, conductivity, oxidation/reduction potential and water depth are measured.

Creel samples were conducted on eight water bodies in 2006. This sampling method puts the fisheries manager in direct contact with the fishermen. Information collected includes species sought and species caught, distance traveled, time fished, number caught and released and a measurement of all fish harvested.

The Inland Fisheries Division also monitors other fish species, including paddlefish and sturgeon. The division continues to collect data on relative abundance, habitat requirements, movements and population estimates. Paddlefish were again artificially propagated and 10,249 were stocked in Louisiana waters. All paddlefish fingerlings stocked were implanted with coded wire tags before release. Tagging, age and growth and population characteristics of pallid and shovelnose sturgeon will continue to be collected in 2007. The division has begun a new three-year cooperative study with the U.S. Fish and Wildlife Service out of Natchitoches National Fish Hatchery and Jackson, MS to tag and track pallid sturgeon in the Mississippi and Atchafalaya rivers

Giving technical advice to owners of ponds and small lakes is also part of the responsibility of the division. During the past year, division biologists made site visits, assisting residents of the state on problems ranging from construction and stocking requirements, to harvest and disease identification. The biologists also answered over 1,000 phone inquiries about various pond-related problems.

The division continues its Freshwater Artificial Reef Program. With many of our Louisiana impoundments losing natural complex habitat as a symptom of aging, the department is now in the process of developing guidelines for the construction of freshwater artificial reefs, with the use of various materials. The preliminary findings indicate that material and methods used do attract and provide necessary cover for all sizes of sport fish and have no negative environmental consequences.

A total of six lakes were designated as candidates for placement of artificial reefs: Toledo Bend; Claiborne; Caney; D'Arbonne; Rodemacher and Bruin. Each reef was constructed, marked with buoys and placed in varying depths. Maps of reef locations with coordinates were made available to anglers.

The Louisiana Cooperative Fish Disease project which the division has with the LSU Aquatic Animal Diagnostic Lab within the School of Veterinary Medicine, provides support to private pond owners. This past year, 87 cases were submitted as part of this project.

The division is also a member of the Southeastern States Cooperative Fish Disease and Parasite Project conducted and centered at Auburn University. This project involves the clearance of chemicals for treatment usages research in fish disease identification, new diagnostic and treatment methods and vaccine development.

The division is also responsible for conducting investigations into fish kills in freshwater. Area impact and losses are recorded for each kill. Naturally-occurring dissolved oxygen depletion, as well as saltwater intrusion, was indicated as the cause of most kills. Continued investigations into the Largemouth Bass Virus problem were conducted. LDWF personnel assisted in administering a grant to LSU to develop non-lethal methods for detection of this disease.

Aquatic Plant Research and Control Program

During fiscal year 2005-2006, the Aquatic Plant Research and Control Program (APRCP) provided substantial benefits to the citizens of Louisiana. Responsibilities included monitoring water bodies for non-native and invasive aquatic vegetation, providing technical assistance and continuous investigation into more effective and environmentally safe methods of controlling these nuisance plants. Aggressive treatment of affected waters continued in an effort to restore and improve the aquatic habitat and the natural desirable balance of plants and fish. Control of nuisance plant species is also necessary to provide boating access to many public waterways.

Twenty-four lakes were type-mapped to determine and evaluate the status of aquatic weeds, primarily submersed. Species composition and density were determined on eight lakes. The results from these investigations were used in formulating management plans.

Biologists continued to provide advice and technical assistance to private and municipal pond owners concerning aquatic vegetation management problems. This popular extension program also provided aquatic plant identification assistance for the public on request.

Research projects of the APRCP included evaluation of new herbicides to determine their effectiveness for use in aquatic weed control.

The department utilizes both conservation and federal funds to control, primarily, water hyacinth (*Eichhornia crassipes*). However, in the course of treating water hyacinth with the herbicides 2,4-D and glyphosate, emergent plants such as alligatorweed (*Alternanthera philoxeroides*), primrose (*Ludwigia* spp.), American lotus (*Nelumbo lutea*) and several others of minor importance were also sprayed. Other troublesome submersed and floating plants not susceptible to control with 2,4-D and glyphosate, such as hydrilla (*Hydrilla verticillata*) and two species of salvinia (*Salvinia minima* and *S. molesta*), require more expensive herbicides. State funds in the Aquatic Plant Control Fund (APCF) were used to purchase herbicides to address infestations of these plants. Crews utilizing outboard powered boats, airboats, mudboats and roadside spray units effectively applied herbicide to 26,009 acres of infested waters. This figure is much reduced from previous years due to spray crews being used for recovery action in the wake of Hurricanes Katrina and Rita. Also, the salt water storm surge from the hurricanes killed many of the plants in the coastal areas of the state. New infestations of giant salvinia appeared in waterbodies which were heavily timbered and difficult to access. Spray crews had to spend a great deal of time searching for and treating these new infestations.

In addition, 15 percent of the APCF is also used to fund research into aquatic plant control by the Louisiana State University Agriculture Center. LSU continued its research into biological control of salvinia using the salvinia weevil (*Cyrtobagous salviniae*). Research efforts are currently focused on rearing a sufficient number of weevils to release on infestations of salvinia. Test releases have been made on common salvinia in selected areas of southeast Louisiana and on a persistent infestation of giant salvinia in the Houma area.

Biological control of giant salvinia using the salvinia weevil is recognized as the leading, and most often used, giant salvinia-control strategy in all areas of the world due to its highly effective nature. Over one million salvinia weevils have been mass produced by the U.S. Department of Agriculture (USDA) in the last two years and released into giant salvinia-infested waterways in Texas and Louisiana.

Fish Stocking

Fish stocking is a valuable fisheries management tool for creating or re-establishing viable fish populations. In 2005, Louisiana was hit hard by two back to back hurricanes, Katrina and Rita, shifting Inland Fish stocking priorities to those devastated and impacted areas. In fiscal year 2005-2006 departmental Inland Fish hatcheries in assistance with other partnerships such as the US Fish and Wildlife Service, Cross Lake Fish Hatchery, Project Jumpstart and other local and private associations addressed stocking needs for 63 diversified water bodies throughout the state of Louisiana.

Summary of Fish Species Stocked Fiscal Year 2005-2006

Blue Catfish:	6,744
Sturgeon:	11,586
Triploid Grass Carp:	15,082
Florida Largemouth Bass:	3,531,562
Striped Bass:	98,113
Hybrid Striped Bass:	65,462
Channel Catfish:	266,761
Bluegill:	1,172,309
Paddlefish:	10,249
Total	**5,178,357**

The following is an alphabetical listing of the water bodies stocked in fiscal year 2005-2006:

Amite River; Atchafalaya Basin; Atchafalaya River; Atchafalaya Marsh; Bayou Lacombe; Bayou Liberty; Bayou Pierre WMA; Bayou Plaquemine; Bistineau Lake; Black Bayou (Bossier); Black Lake/Clear Lake (Natch.); Blind River; Brec Pond; Buhlow Lake; Caddo Lake; Caernarvon; Cane River; Camp Minden; Cheniere Brake; Chicot Lake; City Park Lake (Baton Rouge); Claiborne Lake; Concordia Lake; Cross Lake; Dept Of Ag Ponds; False River; Grambling Lake; Grassy Lake; Henderson Lake; I-55 Canal; Iatt Lake; John K. Kelly; Kepler Lake; Kincaid Lake; Kisatchie NF; Kiroli Park; Lake Bruin; Lake Fausse Point; Lake Ophelia; Lake St. John; Lake Verret; Mermentau River; Mill Creek Lake; Nantachie Lake; Pearl River; Poverty Point Lake; Red River - Pools 1, 2, 3, 4, & 5; Reserve Canal; Rodemacher Lake (Cleco); Ruston City Park; Saline Lake; Sibley Lake; Spanish Lake; Tangipahoa River; Tchefuncte River; Tickfaw River; Toledo Bend; Vernon Lake; and Waddill Recreation Area.

PUBLIC BOATING AND FISHING ACCESS

In a cooperative effort, the department assists local government entities requesting financial assistance in the development and construction of boating and fishing access facilities. To accomplish this, the department obligates a portion of its federal Sport Fish Restoration funds to match up to 75 percent of the total cost of these projects. This program funds both freshwater and saltwater projects which may include construction of boat ramps, parking areas, docks, bulk heading and fishing piers. A total of 73 projects are completed to date, and another 27 are in various stages of either planning or construction.

Public Access Facilities for Boating and Fishing Under Construction or in the Planning Stage

Reserve Boat Launch, Phase II
Reserve Boat Launch, Phase III
Fort Pike Boat Launch
Belle Chase Boat Launch
Golden Meadow Public Boat Launch
Sherburn WMA Boat Launch
Burns Point Park Boat Launch
Calcasieu/Industrial Canal Fishing Pier

Lake End Park, Phase II
Jessie Fontenot Boat Launch, Phase III
South Houma Fire Station Boat Launch
Texas Gulf Road Boat Launch
North Pass
Bayou Macon
Tensas Basin
Baker's Cut-Off
Gateway Landing, Washington
Leonville Boat Launch
Venice Marina
Old Ferry Landing, Tier I
Slidell Marina, Tier I
Cypress Cove, Tier I
Bucktown Tier I
Bucktown Tier II
Bucktown Tier II
Bucktown Tier II

Projects Completed During Fiscal Year 2004-2005
Intracoastal City- Tier I
D'Arbonne Lake Lane Clearing & Marking
Cypress Cove Tier I
Cypress Cove Tier II
Plaquemine Waterfront Floating Docks
Ashland Boat Launch

PERMITS

Inland Fish Division issues a variety of permits to provide individuals a legal method to participate in a specific activity. A list of these permits, a short explanation for each and the number issued last year appear below.

Freshwater Scientific Collecting Permit
Used to take fish for scientific or educational purposes, propagation or for distribution.
Issued - 99

Triploid Grass Carp Permit
Used to allow individuals to possess triploid grass carp.
Issued - 273

Triploid Grass Carp Sellers Permit
Used to allow individuals to import, transport, possess and sell triploid grass carp.
Issued - 9

Tilapia Permit
Used to allow individuals to possess tilapia.
Issued - 10

Experimental Freshwater Minnow Dipnet
Used to allow individuals to commercially fish for minnows using a specific dip net.
Issued - 0

Gamefish Fingerling Permit
Used to allow individuals to transport, possess and sell game fish fingerlings.
Issued - 17

Mussel Harvester's Permit
Used to allow individuals to commercially harvest freshwater mussels.
Issued - 3

Mussel Buyers Permit
Used to allow individuals to buy commercially harvested mussels from mussel harvesters.
Issued - 1

Scuba Spearfishing Permit
Used to allow individuals to spearfish in Toledo Bend Reservoir June through September.
Issued - 4